

**COPING
WITH THE
RAILWAY
FREIGHT
PROBLEM**

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**ADVANCES
IN
AUTOMOTIVE
DIESEL
EQUIPMENT**

See Page 3

VOL. LXXX No. 2071

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LONDON, DECEMBER 6, 1958

PRICE NINEPENCE

Competitive Rates by Rail

LAST week's conference of the British Institute of Management included some important references to transport matters with outstanding contributions from Sir John Elliot and Sir Reginald Wilson. The latter attacked some of the misconceptions about the railway modernisation plan; it was based on a policy of replacement and rationalisation, not of expansion like the road policy. In favourable circumstances a streamlined quasi-automatic railway could work trunk hauls at one halfpenny per capacity ton-mile, but with low traffic density and outmoded means of transhipment the cost could be many times greater. The range of railway cost could be very wide; the railways had been elbowed out of the most suitable traffics into the less suitable and therefore out of their low cost ranges into their high cost ranges. That would have to be reversed by sound price policies and a more selective treatment of customers—treating those customers best who treated the railways best. Any customer who was prepared to come to a proper service agreement to cover predicted traffic flows, preferably two-way, on a properly organised basis for a sufficient period of time would find that very much better rates could be offered to him. The railways wanted to work much more closely with each customer and to study his transport problems with him. A leading article on this subject appears on page 2.

Need for New Public Attitude

BUT it was also essential to look to the community's attitude towards its railways. Even vastly improved services could not be sold at a reasonable price if they were constantly under propaganda attack, if every blemish were magnified by influential sections of the public who made it their business for political or other reasons to bring the railways down. It was too often forgotten that in the last 10 years the railways have paid about £500 million in financial charges; that on a different basis of finance the results would show as profits instead of losses; that in spite of falls in traffic the freight carryings in 1957 were still more than 20 per cent greater than in 1938; that the railways were necessary if the country's transport was going to continue to move at all; and, finally, and above all, that railways were the high-productivity form of transport. It was possible to move, by one train, one million ton-miles in a day, and through-puts of 25,000 ton-miles an hour with two men were quite feasible even in this country. No other form of land transport could touch such figures. "There is no question of divine right for railways," concluded Sir Reginald. "They are only part of the larger whole of transport, but we must make them as efficient as we can, and use them in such fashion as will exploit their great potential for high productivity in bulk-arterial transport."

Management

THE theme of Sir John Elliot was the responsibility of management—the role of the top executive in a large organisation. The short answer was that it was to see that the business was properly run—as simple as that. Although there are "naturals" whose art in management is highly individual and successful, the importance of the matter is so great today that special training is essential. There are two distinct types of top management organisation, with, of course, variations. There is the traditional system of a full-time head responsible to a part-time board and there is the comparatively new team management system, with full-time members of the team each having specialised responsibilities and at the same time jointly responsible for the major policy. Such boards often have part-time members to help them. On balance the team management seemed better suited to the specialised world of today with the impact of science on the one hand and intricate labour problems on the other. The head of the team must not try to be a

CURRENT TOPICS

dicator but could not escape the responsibility of making the team work and work together. He made a strong case for training a "second eleven" ready to take over and, indeed, being given the chance to get "some net practice or a minor test match" by sending the top people away on extended leave. The young aspirant should be encouraged in general subjects, such as political, social and industrial history and some study of what went on in the world outside. Every facet of daily life stemmed from something that had happened before; it could not therefore be a waste of time to study the past, so as to make assessments of the future on the accumulated experience at our disposal. In the ingredients of the ideal

voluntary candidates have passed) since the Institute of Advanced Motorists was formed in 1956, also questioned the wisdom of permitting the driving of high-performance cars after official test on a low-performance vehicle. He criticised the fact that anyone without qualification, other than having passed the elementary test, could practise as a driving instructor.

Confidence in South Wales

A WORKS open day marked the 21st anniversary of Aberdare Cables, Limited, and was followed by some 500 members of the company and their wives attending a dinner at the City Hall, Cardiff, to celebrate

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leader there must be knowledge of the job, ability to delegate, quality which compels respect, competence, clarity and firmness, serenity, a degree of salesmanship, and as important as any other, humility. A sense of humour was necessary to retain a balanced outlook. Finally a dash of a Frank Pick recipe—a spark of irrationality, a fondness of inconsistency, a spark of genius might be desirable, even essential to the good conduct of administration. But it was unlikely that the leader who had all those qualities fully developed ever existed!

Human Error Causes Accidents

THE view that a higher standard of behaviour by all road users rather than improved roads was the answer to the accident problem was expressed recently by Mr. G. H. Eyles, the director of tests of the Institute of Advanced Motorists, in an address to the Industrial Transport Association. We all wanted better roads and no one liked the bottlenecks and holdups which wasted millions of man-hours and gallons of fuel, but unfortunately, said Mr. Eyles, examination of road accident figures for those countries having fewer vehicles per mile and better roads than Britain tended to prove that better roads were not the answer to the problem. The major cause of accidents was human error (lack of concentration, care, courtesy or common sense), not necessarily on the part of the motorist, though it was significant that there were about 108,000 collisions between two or more vehicles annually. There was convincing proof of the beneficial effects of improved standards of behaviour in figures relating to child casualties, said the speaker. In 1930, with fewer than 2½ million vehicles in use, 1,685 children were killed; by 1957, with nearly 7½ million vehicles, the figure had been reduced to 629 as a result of intensive child-training schemes. Mr. Eyles, whose examiners have conducted about 14,000 advanced driving tests (just over half of the

event and inaugurate a long service association, of which the founder chairman, Sir George Usher, and the present chairman, Sir John Pascoe, became founder members together with 26 others, mostly from the town of Aberdare. In the recession of 1937 45 per cent of the men in that town were unemployed and the founding of the firm by Sir George Usher, Sir John Pascoe and the late Mr. F. G. Penny was something of an act of faith. Government proposals to bring relief by encouraging new firms to set up in distressed areas had not yet been implemented. The measure of confidence in an uncertain future shown by the company was that it was the first attempt to get industry other than coal or steel into the South Wales valleys. The confidence was fully justified and the company has an enviable history of success in all it has undertaken. It recruited local labour as much as possible and has continued to do so ever since. Since cable manufacture was something new to the district it was also necessary to bring key men from outside in order to run the company and train local men. The first two executives to come to Aberdare are still there—21 years later. The original factory site was 19 acres and the buildings completed in 1938 had a total floor space of 63,000 sq. ft. The original layout has survived successive expansions because it is still considered to be the best of its kind. The faith placed in Glamorganshire and the enterprise of the founders have been well rewarded.

Motorway Traffic Signs

ROAD signs differing considerably from those in use on existing roads have been erected on the Preston By-Pass motorway, which the Prime Minister was due to open on December 5, where they are to be tested before being approved or modified for use on the longer motorways now under construction. The new system of signposting is based on the interim report of the Advisory Committee on Traffic Signs for Motorways

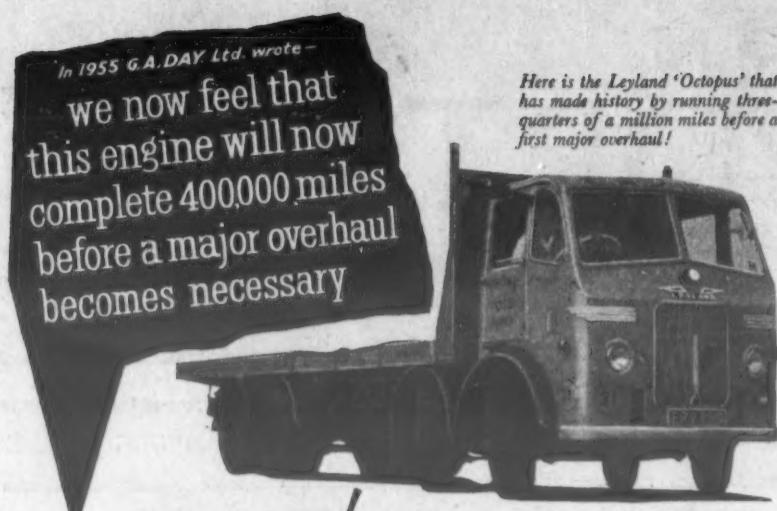
set up by the Minister of Transport a year ago under the chairmanship of Sir Colin Anderson. This body has studied the signs used on comparable roads in the United States of America and various European countries. All the committee's proposals, which are closer to European than American practice, are provisional and final recommendations will be made only after experience has been gained under actual traffic conditions, tempered by the views of representative organisations. The new signs have been designed for traffic travelling at speeds of up to 70 m.p.h. and are large enough to be seen and read from a distance of 600 ft. Lower-case letters 12 in. high are used for place names because they are easier to read than capitals and all markings are white on a blue background, a combination that has been found by experiment to give the greatest legibility in this country, particularly at night. Wherever practicable the signs are lighted at night; others are treated with reflective material. Approach roads will be identified by a new motorway symbol, which consists of a ring with two inset parallel white lines on a blue background.

Easy, Cheap and Safe for Others

CELEBRATION of the 150th anniversary of the birth on November 22, 1908, of Thomas Cook, founder of the travel business which has made the name a household one throughout the world, took place last week when a reception took place at the Berkeley Street headquarters of Thos. Cook and Son, Limited. This was a most splendid affair taking full advantage of the great hall of the building and utilising the counters most ingeniously to display the numerous gifts, consumable and otherwise, from transport undertakings and others in all parts of the world. Mr. Stanley Adams, chairman of the company, commented upon its ability to develop and its strength in surviving a number of ups and downs during its existence. Its business travel scheme, which was the latest venture, had caught on very well indeed and the evening also marked the provision for it of new accommodation and the completion of two additional floors. The only other speaker was Mr. F. J. Erroll, Economic Secretary to the Treasury, who expressed the congratulations of the guests, most of whom were connected with the travel business, and commended the Cook's service available in the Houses of Parliament. Recalling the origins of the business when the founder organised a railway journey for a party of temperance supporters from Leicester to Loughborough in 1841, he felt that Thomas Cook would be pleased to see the present development of the concern, although not perhaps surprised, since it had followed the ideal of making travel "easy, cheap and safe for others" which he had laid down.

Railway Finance Bill

SEQUEL to the financial crisis that has overtaken British Railways is the Transport (Borrowing Powers) Bill which was read in the House of Commons for the first time on Monday. It provides for the borrowing powers of the British Transport Commission for capital expenditure to be increased from £600 to £1,200 million, and increases the amount that may be borrowed to meet railway deficits from £250 to £400 million. It thus fulfils the undertaking by Mr. Harold Watkinson, Minister of Transport, in his recent letter to Sir Brian Robertson, chairman of the Commission. Without such a provision, after meeting this year's deficit of £85 million only £47 million would be available to cover the deficits which are expected to run until 1961 or 1962. Nearly half the modernisation costs would have to be provided in any event to meet renewals and replacements. But quickening of the pruning and modernisation process is obviously an urgent necessity for the Commission's wellbeing and the expansion of borrowing for capital purposes will assist towards this aim.



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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

We desire to call the attention of our readers to the fact that Russell Court, 3-16 Woburn Place, London, W.C.1, is our sole London address, and that no connection exists between this newspaper and any other publications bearing somewhat similar titles.

Coping with the Railway Freight Problem

THE railway freight situation is serious. True, the decline has been accentuated by the trade recession over the last few months, but despite the comforting fact that 1957 railway traffics were still ahead of the 1938 figures, the well-nigh continuous fall over the last 10 years on account of the increasing competition of road transport can hardly be viewed by railway officers with equanimity. Action on the railways is urgent, because in terms of gross receipts railway freight business—merchandise, coal, minerals and parcels—brings in about half the total receipts of the British Transport Commission. The modernisation plan is proceeding apace, but its completion, even if some of its phases are greatly accelerated, will avail little if on the freight side most of the traffic has been lost to a fast-improving road system. Immediate action must rest with the commercial department. As a contributor points out in the December issue of *British Transport Review*, unless this department makes swift and profitable use of the railways' new charging freedom their future "may prove to be a case of suicide rather than of murder." He is Mr. D. R. Harries, freight commercial assistant at Sheffield, and the interest and value of his article are emphasised by the fact that, to quote the author, it is written "by a junior executive who has been trying to sell rail transport to traders" and that "it reflects some of the trials and frustrations of the smaller traders and the railwaymen with whom they discuss their problems." Its real purpose, however, is to "explore some ways out of the slough of traditional charging with a view to increasing railway business within the limitations imposed by the charges scheme." Its suggestions bear the hall-mark of good sense and logic and are worthy of close study, both by railwaymen anxious to solve the problem and by the wider circle of prospective users.

Importance of Full Wagon User

TODAY there is no field in which railways have a monopoly and, as the author points out, they are slowly but surely being deprived of even the bulk traffics which for so long formed the cornerstone of their finances. This he regards as chiefly due to the growth in the number of road vehicles of 16 tons capacity and over. These are represented by the category of over six tons unladen weight, which has grown from 5,290 units in 1946 to 22,035 in 1957. He is convinced there are still railwaymen who are oblivious of what is being done currently on the roads in carrying bulk traffics and transporting exceptional loads. More and more traders are succumbing to the attractions of lower rates—and sometimes better service—by road. The problem is how to stem this trend—how to secure the revenue the railways already enjoy and yet obtain additional business from road transport at rates lower than those on the railborne traffic passing at the present time. First the railways must consider how best to use the new

power to cancel existing exceptional rates and replace them by some scale more acceptable to themselves and their customers. The author considers, for instance, the case of traffic from a private siding enjoying a 4-ton exceptional rate but with a loadability of 8 tons and rarely exceeding 4 tons a truck. The remedy here would seem to be replacement of the exceptional 4-ton rate by charges based on 4, 6 and 8 tons a truck, always with a careful eye on road competition. But the action must be prompt and positive, with a demonstration of the benefits to be derived by the customer from full loading.

Two-part Tariffs

THE author finds increasing acceptance of the two-part tariff system (recently adumbrated by Mr. A. B. B. Valentine in his presidential address to the Railway Students' Association), particularly in respect of traffic to and from undertakings with extensive private sidings, although it has been successfully applied to other traffics. He analyses thus:

Let us assume we have a cement works receiving 100,000 tons of traffic a year—50,000 tons by rail at 30s. a ton and 50,000 tons by road at 20s. a ton, each with an average haul of 45 miles. The railways in this theoretical case are steadily losing business but will retain sufficient carrying to tide the firm over weekends—say 10,000 tons a year. Ultimately the revenue will become £15,000 compared with a monopoly revenue of £150,000, now gone for ever, and a present but declining revenue of £75,000. Supposing the railways were to offer charges based on 4d. a ton-mile coupled with a fixed charge of £20,000; consider the effect on the firm's transport payments:

	Rail Charge	Road Charge	Total
	£	£	£
If at traditional rates:			
10,000 tons railborne ..	15,000	90,000	105,000
If at two-part tariff rates:			
30,000 tons railborne ..	42,500	70,000	112,500
50,000 " "	57,000	50,000	107,000
80,000 " "	80,000	20,000	100,000
100,000 " "	95,000	—	95,000

On this basis the firm could save money by increasing its rail intake; the break-even point is at 60,000 railborne tons, a readily attainable figure. Once its rail intake exceeds this tonnage it begins to reduce its transport costs. Conversely if the trader once accepts this system of charging, with its incentive for extra traffic, he must also accept the penalty of rising transport costs should he fail to use rail to the fullest advantage; and why not?

To conform to the principle, followed by many large traders, of charging different prices according to the area served the author has found it advisable to offer the same delivery rate to any consignee in each area, thereby enabling the sender to know his transport costs in advance. He also suggests the desirability of fixing rates on a package rather than on a tonnage basis, as hitherto, in the flower, fruit and vegetable trades.

Need for Boldness

SIDING and cartage rebates have long been prominent in railway charging and Mr. Harries proposes means of inducing traders to make more use of rail by granting higher rebates in exchange for more traffic. With the disappearance of the classification he sees a great opportunity for "job prices" for special movements of, for instance, heavy articles, structural steelwork, block loads and train loads, based solely on market considerations. In general railways have not participated in the expanding production of the last 10 years and, in particular, their commercial departments have not so far been able to make any substantial contribution to the needed improvement of net revenue despite more favourable charging arrangements. He believes that the railways must above all attract traffic from the roads, but that unless charges can be offered which will make it generally possible to compete with road where rail costs permit the sales organisation can do no more than fight a losing battle. He finds that one of the main obstacles is the vast cross-subsidisation of uneconomic by economic services, and that so long as the low cost traffics are expected to make an unreasonably high contribution to indirect costs the commercial departments cannot hope to compete for business additional to that they are trying to hold. If railway salesmen are to use to best advantage the freedom accorded by the 1953 Act they must understand to the full the opportunities arising therefrom.

"In the future," says the author, "initiative will have to be encouraged in those who sell transport, and district officers in particular will have to seek new price mechanisms which can work to the mutual advantage of railwaymen and traders alike. But this presupposes some devolution of rates authority to those who negotiate with industry." There must indeed be boldness in implementing the new charging arrangements and no lack of encouragement to traders to send by rail traffics which can be carried at less cost than by road if the railways are to justify themselves in the latter part of the twentieth century.

[Forthcoming Events appear on page 9]

MODERN TRANSPORT has an arrangement with Reuter's Trade Service whereby publication is made in this newspaper of all essential news from all parts of the world concerning traffic and transport by rail, road, sea and air and allied interests.

THE DIESEL ADVANCES

C.A.V. DPA Pump Widens Scope of Application

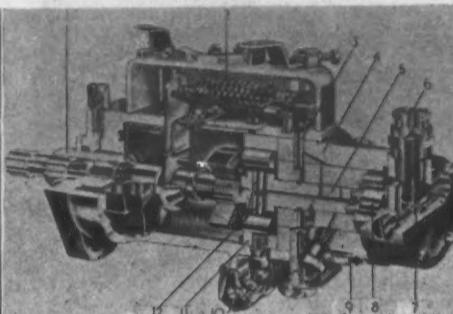
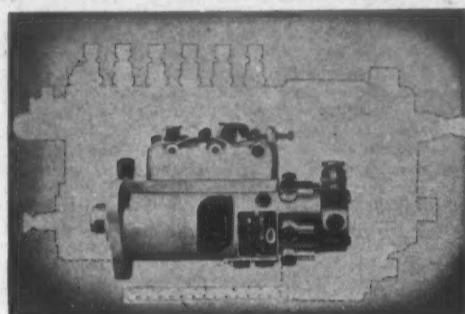
ADVANTAGES FOR AUTOMOTIVE ENGINES

As we recorded in our issue for November 22, the C.A.V. DPA distributor fuel-injection pump for diesel engines is now in quantity production at the Rochester works of C.A.V., Limited, which has been equipped with new machine tools and equipment at a cost of £1 million capable of producing 1,000 pumps a day. In fact, the DPA pump has been in fairly large-scale production by the company since 1956 and more than 150,000 of them are actually in service in various types of vehicle and industrial equipment in nearly every country in the world. Even before that, apart from extensive laboratory testing, over 100 prototype units had been operated in road vehicles, tractors and plant for some hundreds of thousands of hours

not deliver fuel when run in the reverse direction; phasing and calibration are inbuilt and require no periodic adjustment; pumping parts are light in weight and there are no springs to wear or fatigue; and the pump is always filled with fuel under slight pressure, ensuring good lubrication and excluding dust and dirt.

Construction

Although developed primarily for the smaller high-speed type of engine, the application of the new unit is likely to be far wider and development work continues by C.A.V. with almost every British manufacturer and many on the Continent with engine sizes of 1½ litres and more per cylinder. The final upper limit of application of the distributor pump has not yet been fully established but the company says it seems clear that it will in



Comparison of size of C.A.V. DPA pump with mechanical governor with that of an in-line pump for similar capacity; right, a sectioned view of the pump with mechanical governor showing 1 drive hub, 2 governor spring, 3 metering valve, 4 hydraulic head, 5 rotor, 6 fuel inlet, 7 regulating valve, 8 transfer pump, 9 injector pipe connection, 10 automatic advance device, 11 camring and 12 pumping plungers

with most successful results. Thus the DPA pump emerges as a thoroughly proved instrument. It is currently fitted as standard equipment to David Brown and Massey-Ferguson tractors, Rootes Group light and medium diesel vehicles, the Land-Rover and Perkins Four 99 and C305 engines.

Development

The DPA pump was developed principally to meet the need for cheaper fuel-injection equipment, particularly for the smaller type of engine in which the injection pump formed the most expensive single item. But it was also realised that there was a limit to what could be done with the in-line pump to meet the requirements of automotive engines, in which the trend was towards continually higher speeds to gain the benefits of higher specific power, much as had been accomplished along these lines. In fact the in-line pump had been so highly developed and had been made so remarkably efficient that the task of developing a unit that could be offered with confidence as an alternative was made extremely difficult.

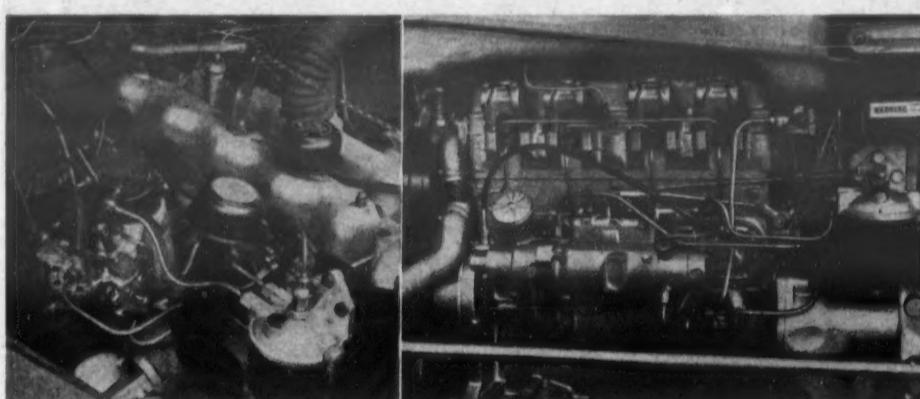
The overriding desire to reduce the cost led to the conclusion that some simplification of design was necessary and C.A.V. turned its attention soon after the last war to the development of a single-plunger type of pump, in which a single set of precision parts replaces the multiple pumping elements of the in-line pump, with a distributor to direct the fuel to the injectors in the correct

course able to replace by one single design several of the existing in-line type pumps. This will result in further improvement in the overall economics of manufacture.

The C.A.V. DPA pump can be briefly described as a single-cylinder opposed-plunger inlet-metering distributor pump, the main features of which can be seen in our upper illustration. This shows the pump fitted with all-speed mechanical governor; with the all-speed hydraulic governor identical pumping parts are used but there is a shorter casing with the simple hydraulic components housed in a small casting attached to the side of the pump body. The main rotating units of both types are arranged on a common axis and rotate as one; they comprise a drive shaft, a pumping and distributing rotor and a fuel transfer pump. The additional mechanical governor components when fitted are mounted on the drive shaft.

Rotor

The rotor comprises two parts, a pumping section and a distributing section, the latter being a close rotational fit in a stationary cylindrical steel body (hydraulic head). The pumping section is larger in diameter than the distributing section and has a transverse bore or cylinder containing two opposed plain plungers. The use of opposed plungers obviates hydraulic side thrust on the rotor that would result from the use of a single plunger. The plungers are operated by a stationary internal camming through rollers and shoes carried in slots in the periphery of a flange on the rotor. Normally



DPA pumps installed vertically on a Land-Rover diesel engine and, right, horizontally on a Standard engine in a Massey-Ferguson tractor

order. Considerable fundamental hydraulic research was undertaken at Acton to evaluate the phenomena affecting metering and distribution of the minute quantities of fuel involved and to ascertain the features necessary to achieve optimum performance.

In 1953, during a review of the work done up to that time by C.A.V. and others, the attention of the company was drawn to a distributor pump then under development by the Hartford Machine Screw Company in America, which operated under new principles and appeared to have attractive possibilities. The Hartford unit had already undergone several years' laboratory and field development in America. C.A.V. was sufficiently impressed to conclude an agreement with the Hartford Company for the production and further development of the unit and the intervening years have been spent in developing the basic Hartford design to meet the requirements of British and European engine designers.

Advantages

Apart from substantially lower weight and bulk and lower cost, which show up more favourably the greater the number of cylinders, the DPA pump has several inherent advantages compared with the in-line pump. It is basically simple and can be operated at high speeds without mechanical complication; its principles of operation permit the incorporation of automatic variable timing to give optimum efficiency over a wide speed range and improved cold starting at little extra cost; drive requirements are simple and offer scope for substantial reduction in the cost of drive provisions on the engine and in the pump itself; excellent governing can be incorporated by comparatively simple hydraulic or mechanical means; it can

the camring carries as many cams as there are cylinders to be served so that with a four-stroke engine the pump runs at half engine speed.

The distributing section of the rotor contains a central axial passage which connects the pumping space between the plungers with ports drilled radially in the rotor for fuel inlet and delivery. Holes drilled in the stationary hydraulic head or body are arranged to admit fuel to the pumping space and deliver it under high pressure to the injectors when the appropriate ports line up with them and the plungers are operated by the camring as the rotor is turned. On the end of the rotor remote from the drive is mounted a continuous-discharge vane-type transfer pump. It is housed in the hydraulic head and covered by an endplate containing an inlet connection, through which fuel enters the pump from the normal fuel lift and filtering system, and a bypass valve which controls the transfer pump pressure. Fuel under continuous moderate pressure passes from the transfer pump to the pumping space in the rotor through a metering port containing a variable metering valve actuated by either the engine control lever or the governor.

Operation

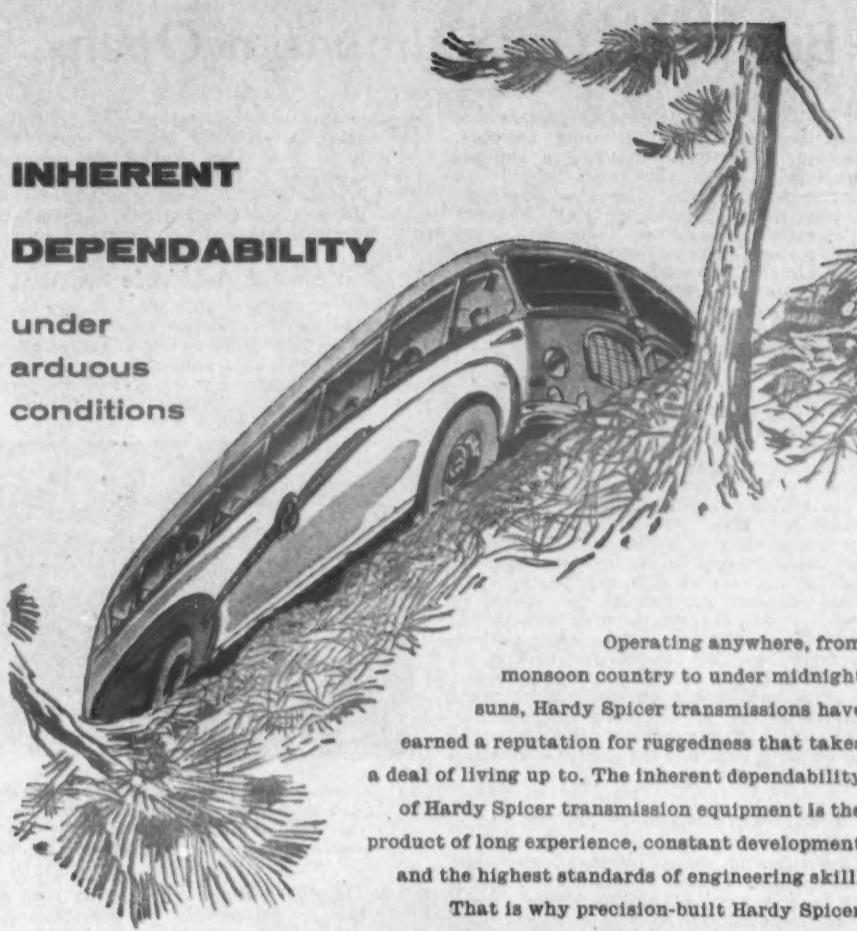
As the rotor is turned, with the rollers clear of the cam lobes, one of the inlet ports lines up with the metering port in the head and fuel at transfer pump pressure enters the pumping space in the rotor and forces the plungers apart (there are no springs). As the rotor continues to turn the inlet port closes again and shortly afterwards the delivery port aligns with one of the fuel outlets; both cam rollers then contact opposing lobes on the camring and the plungers are forced inwards

(Continued on page 12)

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LORRY—BUS—COACH

Bus Fuel Tax Campaign Opens

THIS week bus operators who are members of the four associations covering England, Scotland and Wales launched a national campaign against what they term "penal fuel taxation" which is causing "great inconvenience and hardship to the travelling public." The four main operator associations concerned, the Municipal Passenger Transport Association, the Public Transport Association, the Passenger Vehicle Operators' Association and the Scottish Road Passenger Transport Association, are joined for this purpose in the Joint Fuel Tax Committee for the road passenger transport industry. Every local authority and every urban and rural district council in the country is being asked to support the associations' campaign.

Copies of a leaflet are being sent to them and to members of both Houses of Parliament. It is estimated that in paying for their bus tickets passengers are paying hidden taxes amounting to nearly £40 million a year, some £30 million of it on account of fuel tax. The disastrous effect on country bus services is particularly emphasised, also that industries (consuming five times as much oil) and the railways as such pay no tax. The committee asks that bus fuel oil, too, should be tax free. It also suggests a more logical and equitable distribution of excise duty licences, having regard to the comparative road space occupied by buses and cars; 60 passengers in a bus occupy little more than twice the space occupied by the smallest car carrying an average of only 1.5 passengers. "All governments will listen to the voice of public opinion if it is sufficiently loud and articulate," the leaflet asserts.

Free Bus Rides for Children

CHILDREN accompanied by an adult will be carried free of charge by the Gosport and Fareham Omnibus Company during the evenings between December 4 and New Year's Eve in order to see Christmas decorations.

Trips on Preston By-Pass

SPECIAL coach excursions, which will enable passengers to see the new Preston by-pass motorway shortly after it had been opened by the Prime Minister on Friday this week were to be operated by Ribble Motor Services, Limited, and its subsidiaries, W. C. Standerwick, Limited, and Autys' Tours, Limited. Whether the drivers had instructions—or permission—to "put their toes down" is not known.

No-Standing Talks Fail

UNDETERRED by its failure to persuade London Transport on Monday this week to ban entirely standing passengers on its buses and trolleybuses, the T. and G.W.U. intends to press on with its plans to seek revision of similar agreements with provincial undertakings. Mr. A. L. Higgs, secretary of the bus department in the London region of the union, was the principal spokesman in the London talks. One argument put forward in support of the request was that stand-

ing passengers made conductors' work difficult and this would be worsened by the overcrowding which the union says has resulted from recent cuts in services. The L.T. busmen's negotiating committee is reported to be lodging a claim for a 2s. a week rise for Country area drivers and conductors to restore the differential with provincial men.

First Special A-Licence Renewed

GRANT of the first ordinary A-licence in continuation of a special A-licence has now been made by the Metropolitan Licensing Authority—in chambers, there being no objectors, but satisfactory evidence was produced in support of the application which was by Stratford Warehousing and

venience of his workmates, so that he could do part-time work as a window cleaner. In the other case a conductor had objected taking out vehicles because, he claimed, they were inadequately cleaned. Birmingham buses were in fact maintained to a standard second to none in the country, said Mr. Green. The men concerned, disgruntled at not obtaining support, dropped out of the union. Their attitude was resented by their workmates at the garage and, at an open meeting, it was agreed that the rest of the staff would refuse overtime duties if the two continued to work it at weekends. Agreement had since been reached between the union and the management that Saturday and Sunday overtime (other than rest-day working) should not be allocated to non-unionists, unless union members are not readily available. The union says that only about 40 drivers and conductors are not in the union.

Double-Deck Ferry Trailer

TO its already varied fleet of special semi-trailers designed for service to and from the Continent, Continental Ferry Trailers, Limited, of Barking,



A double-deck semi-trailer for the Continental ferry service of a Barking haulier (see story). It can be sheeted to comply with carnet TIR requirements, as can the Austrian-built O.A.F. type F745 145 b.h.p. 10-tonner, seen right, in the service of a Swiss haulage contractor. Both vehicles have special arrangements for the Customs sealing of the protective tarpaulin sheets

Storage in respect of one vehicle. The grant is for a normal five-year period. On December 15 the Licensing Authority is to hold a public inquiry for Sutherlands of Peterhead (Road Hauliers), Limited, to show cause why two special A-licences should not be revoked or suspended under the provisions of section 9(4) of the Transport Act, 1953.

History of Overtime Dispute

AFTER it had previously refused to assent to the closed shop principle, Birmingham Transport Committee has now consented to a union demand that overtime be offered first to union members and is to ask all newcomers if they will join a union. Trouble involving two members of the Lea Hall bus garage staff led to these amendments to the working agreement, it is now disclosed. The Conservatives intend to ask the City Council to withhold approval of the changes. Mr. H. Green, district secretary of the T. and G.W.U., said that the trouble at Lea Hall arose when the branch chairman had to agree that the management was right in two instances involving members of the garage staff. In the first case a driver had been seeking fairly regular changes of duty, often to the incon-

venience of his workmates, so that he could do part-time work as a window cleaner. In the other case a conductor had objected taking out vehicles because, he claimed, they were inadequately cleaned. Birmingham buses were in fact maintained to a standard second to none in the country, said Mr. Green. The men concerned, disgruntled at not obtaining support, dropped out of the union. Their attitude was resented by their workmates at the garage and, at an open meeting, it was agreed that the rest of the staff would refuse overtime duties if the two continued to work it at weekends. Agreement had since been reached between the union and the management that Saturday and Sunday overtime (other than rest-day working) should not be allocated to non-unionists, unless union members are not readily available. The union says that only about 40 drivers and conductors are not in the union.

Theft from Lorry Park: B.R.S. Loses

A N appeal by the Colney Motor Engineering Co. Limited, owner of a service station and car park, from the judgment of Mr. Justice Gorman, awarding damages to B.R.S. (Contracts), Limited, the owner of a long-distance lorry, in respect of 36,000 cigarettes stolen from its lorry while it was parked in the defendant's car park at London Colney has been upheld in the Court of

Appeal. Lord Denning said that there was no bailment. He had been influenced by the fact that a standard charge of 1s. 6d. a night was made for parking irrespective of the value of the contents of the lorry, and by the fact that the appellant exercised no control over the lorry, which was locked up by the driver, who kept the keys and who drove away when he liked. All this pointed to the place being a car park rather than a place in the nature of a closed garage. The case would have been different and a duty of care imposed on the defendant if the driver had made it plain to the attendant that the lorry had a valuable load.

Second ARTCO Meeting

PRESIDING at a second open meeting of Associated Road Transport Contractors (ARTCO) in London on November 28, Mr. Allan Cusick outlined the objects of ARTCO and stressed that voluntary co-operation of hauliers within an organisation such as ARTCO enabled them to compete with larger organisations—no one haulier was big enough on his own. He felt that the need for co-operation and mutual assistance among hauliers with like interests was greater today than ever. The directors placed great importance on regular meetings between the operational staffs of the members; the personal contacts thus made were of the highest value. Mr. M. W. Harris, who originally conceived ARTCO, referred to new developments within the R.H.A. He said he understood that some long distance operators in the R.H.A. were suggesting that the Association's offices could be used to develop a kind of ARTCO within the framework of the Association. It seemed from that, that long distance hauliers were recognising the need for this kind of co-operation, but he contended that it would be quite wrong for the Association to interfere in any way or even allow its offices and officers to be used for the provision of commercial facilities of any kind. But ARTCO was not in competition with any other organisation. The majority of the members of the former ARTCO are expected to join the new organisation and applications from newcomers are described as most encouraging. Applications are examined with a view to selecting operators who can contribute to the formation of a network.

Bus and Coach Developments

R. S. Merchant, Cheltenham, applies for services from Brize Norton (U.S.A.F. Base) licensed to E. Taylor.

T. W. Blockley and Sons, Limited, proposes a Saturday express service in summer between Leicester and Ramsgate.

Associated Motorways applies for a Saturday service in summer between Northampton and Paignton via Brackley, Oxford, Swindon, Bath, Taunton, Exeter and Torquay.

W. R. Lawrence, Wappenhurst, applies to extend his Banbury—Slapton service to Towcester, abandoning the route between Slapton Bridge and Slapton (Royal Oak).

Red Rover Omnibus Limited, seeks to replace its local service in Aylesbury between Kingsbury Square and Weedon Road Estate by a Quarrendon Estate—Kingsbury Square—Turnfurlong Estate service.

Eastern National Omnibus Co., Limited, proposes new Saturday express services in high summer between Tilbury and Colchester and Dovercourt and Tilbury and Ipswich and Felixstowe. There would be feeder coaches from South Ockendon and Avelsey.

The tour programme of the Birmingham and Midland Motor Omnibus Co., Limited, for 1959 includes a number of innovations. There is a 14-day tour to Galloway and Ireland operated in conjunction with the Ulster Transport Authority and two five-day Monday to Friday tours to Devon and Wales cater for those who are not free at weekends. For the first time since 1959 there are no coach tours—either day cruises to the Norfolk Broads and London—and a two-day weekend tour to Snowdonia. There are three new tours to Scotland. By a slight increase in seating capacity it has been found possible to keep the charges at last year's rate.

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LONDON MIDLAND MODERNISATION-4*

TRAINING THE TRAIN CREWS

Locomotive and Multiple Units for Crewe— Manchester Line

FOR the training of the train crews who are to work the Manchester-Crewe electric services an electric locomotive has been made available to the London Midland Region, as already recorded in our columns. It is the erstwhile Metrovick Co-Co gas-turbine-electric unit; in its new guise as a locomotive for driving instruction it has the A1A—A1A wheel arrangement. Four multiple-unit train sets are also being made available for the instruction of drivers and guards and these are on loan from the Eastern Region, being the first of the Tilbury stock to be completed at York. In all 206 instructors and drivers are to be taught driving and 88 guards will have a course on multiple-unit train working.

Multiple-Unit Stock

On a recent inspection Set No. 201 for the London, Tilbury and Southend electrification was on view. These trains are being built at York and Doncaster and equipped with English Electric traction equipment and Westinghouse brakegear. They run in four-car sets, each comprising battery driving trailer, motor coach, trailer and driving trailer semi-permanently coupled by fixed head automatic couplings and with buffers and drop-head automatic couplings at both ends of each four-car unit. The total length overall is 266 ft., and total tare weight 150 tons; maximum speed is 75 m.p.h. The trains are made up of both open and compartment stock and each unit has seating for 19 first- and 344 second-class passengers. Up to 12 cars can



The first 50-cycle a.c. electric locomotive on British Railways, E1000, at Mauldeth Road on its first passenger train.

be controlled from any cab by means of master controllers interconnected by 36-way control jumper lines. Under the battery driving trailer is mounted the emergency battery, the associated charger and the main compressor. Mounted on the depressed roof of the guard's van on the motor coach is the Faiveley pantograph and Brown Boveri air blast circuit breaker. The former collects 25,000 volts or 6,250-volt current from the overhead line and supplies it to the main transformer mounted on the underframe in the centre bay. This in turn supplies the mercury arc rectifiers also on the underframe, and also supplies power for the auxiliary circuits from a tertiary winding. The motor coaches are each powered by four axle-hung nose-suspended traction motors continuously rated at 232 horsepower and driving on to 40-in. wheels. All the control gear is underframe mounted. The 15 London Midland trains for this line will closely resemble these multiple-unit trains except for the electrical equipment. The 42 electric locomotives will be 3,300 h.p. Bo-Bo units weighing 80 tons and therefore considerably different from the training locomotive Eroo, which provides, however, similar control gear so that men can familiarise themselves with the new order of things.

50-Cycle Single-Phase Locomotive

Since our previous reference further particulars have become available of E1000, the first 50-cycle a.c. locomotive to run in this country. It has been produced to the order of British Railways by converting locomotive No. 18100, which ran on the Western Region as an experimental gas-turbine locomotive; Metropolitan-Vickers built the original gas-turbine locomotive and the conversion has been made at the Stockton Works of Metropolitan-Vickers—Beyer, Peacock, Limited.

British Railways has two principal functions for the locomotive. First is the advance training of the drivers required for the two Bo-Bo a.c. locomotives now being built; secondly it enables the testing of the first section, between Slade Lane and Styall and Wimslow, of the new 25,000-volt system which will eventually extend from Euston to Manchester and Liverpool. Although it will be some time before there are public services on this line, the locomotives will be used for testing purposes with passenger and goods trains. They are equipped with a dual voltage transformer so that they can operate on both 25,000 and 6,250 volts overhead, although the whole of the Styall line will operate at 25,000 volts.

Modifications

To effect the conversion, considerable modifications to the original locomotive were involved, the chief being removal of the turbine and generators with their air filter units, fuel tanks and control gear; lowering of the roof of the gas turbine compartment, to accommodate the pantograph and circuit breaker within the loading gauge of the Euston, Manchester, Liverpool route; reduction of the buffer size and modification of the bogie springs to comply with the L.M. loading gauge; conversion of the driving cabs to left hand driving, from the right hand arrangement of the Western Region. It was possible, however, to retain four of the six traction motors and their blowers, exhausters, main compressor, radiator with cooling fan, the battery and the battery manoeuvring feature of the original locomotive. With 3 ft. 8 in. wheels the maximum intended speed is 90 m.p.h. The weight is 105 tons and the length over buffers 66 ft. 9½ in.

The new equipment comprises pantograph; a.c. transformer down to 360 volts at 50 cycles; air blast circuit breaker; main transformer; auxiliary transformer; main rectifiers; auxiliary rectifier; smoothing chokes; and a.c. auxiliary fan motors for main rectifier cooling fans and smoothing choke cooling fan. This new equipment, with the exceptions given below, is of Metropolitan-Vickers manufacture. British Railways provided

the Stone-Faiveley pantograph and the Brown Boveri air blast circuit breaker; the main rectifier is of the Hackbridge and Hewittic glass bulb type.

Alterations to the controls have brought the driving cab layout generally into conformity with that of the a.c. locomotives now being built, but future cabs will be rather roomier. The changes effected consist mainly of moving the driving controls to the left hand side of the cab; siting the instruments in line with the layout of the new a.c. locomotives; providing Davies and Metcalfe brake valves; and fitting a dead-man control and automatic train control. The mechanical parts remain basically unchanged, comprising a structure carried on two fabricated bogies by swing links resiliently attached by rubber resilient universal joints. Of the three axles in each bogie, two are driven by axle-mounted traction motors. The four traction motors, type NV271, are separately ventilated four-pole series and interpole machines, rated at 525 amps, 1,000 volts, continuous and 620 amps and 1,000 volts on an hourly basis.

Apart from motor and rectifier the equipment is that to be supplied to the Metrovick a.c. locomotives. The main transformers are in one tank—an auto transformer with 38 taps to feed a stepdown transformer, which in turn supplies the main rectifiers. The auto winding is tapped at 800 volts to provide train heating, and at 240 volts to supply the auxiliary motors and auxiliary transformer. The h.t. tap changing unit and control gear are built on to the side of the transformer tank, the tap changer being immersed in oil to reduce the clearances required. Incorporation of the h.t. tap changing system in the transformer gives a light composite transformer and tap changing unit. The transformer is forced-oil-cooled, the oil being pumped by a special oil-immersed Pulsometer pump motor unit through the original fan-cooled turbine lubricating oil cooler.

The transformer incorporates a voltage change-over switch, which alters the supply tapping on the auto transformer to correspond with the main incoming voltage at either 25 kV or 6.25 kV. The change-over switch is automatically controlled by an automatic power control (a.p.c.) system which consists essentially of a track magnet, receiver on the bogie of the locomotive and a line voltage transformer which feeds a number of voltage selecting relays. Except that it will restore current at the same voltage this apparatus will also be used to cut off and reconnect current when the train is passing through ordinary section gaps in the overhead.

Rectifiers

The Hackbridge and Hewittic mercury-arc rectifiers consist of 16 four-anode glass bulbs connected in bi-phase to provide the supply to the traction motors, the normal load being distributed between the bulbs by anode compensators. Direct current excitation is used because of greater stability with the voltage variation experienced in traction. The continuous rating of the rectifier is 2,800 amps at 975 volts; each bulb is cooled by a 1,200 cu. ft. per minute fan. The complete rectifier unit is enclosed in a compartment which can be heated in cold weather by electric heaters and ventilated by a 30-in. 1,400-r.p.m. Keith Blackman fan drawing 10,000 cu. ft. per minute of air through the side of the locomotive.

A smoothing choke is connected between each traction motor and the main rectifier, to limit the ripple current delivered to the motor. These chokes are of the iron-cored type, insulated with class H insulation and air blast cooled. The 65 kVA transformer is oil-filled, naturally cooled and mounted on the locomotive underframe. Its main load is a bridge-connected germanium rectifier unit which feeds the 110-volt d.c. auxiliary motors, the control circuits and lighting, and charges the battery. The germanium rectifiers and four smoothing chokes are mounted side by side and are cooled by a 14-in. diameter fan.

Control Equipment

The control equipment operates at 110 volts d.c. and 70 lb. per sq. in. air pressure. It incorporates the essential d.c. equipment of reverser, motor contactors and overloads, and controls for the h.t. tap changing system and a.t.c. and a.p.c. equipments. It also permits the battery to be connected to the traction motors, to move the locomotive when not under the contact line or when the line is dead. The master controller in each driving cab has two operating handles, a reversing handle having three positions (forward, off, reverse), and a main handle having six positions (off, run back, notch back, hold, notch up, run up), for controlling the operation of the tap changer and main contactors. On "notch" positions the controller changes one notch at a time; on "run" positions it will change notches until moved to another position. The two handles are mechanically interlocked. The controller is locked by a small control key, which can be extracted only when both handles are in the "off" position.

Fault protection is effected by an earth leakage relay system which trips on earth fault, and a differential relay system on the auto transformer; both trip the air blast circuit breaker. Fault indication is by means of lights. A light in the driver's cab indicates the presence of a fault, which must be investigated by the driver from the fault indicating panel in the body of the locomotive. A switch to earth the pantograph and circuit breaker is provided and is interlocked to avoid closure when the pantograph is raised.

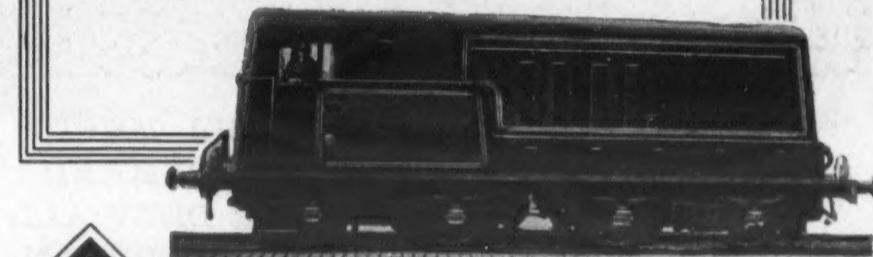
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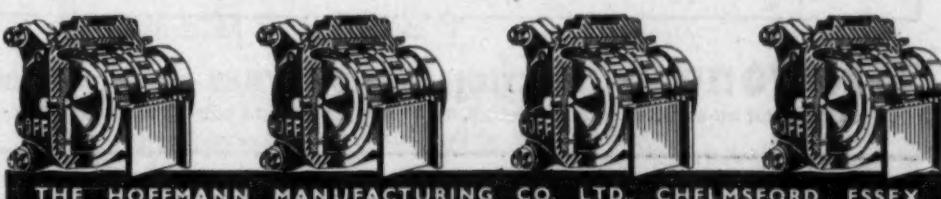
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THE DEMAND
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Interurban Electric Traction Undertaking (Cont.)*

THE Atherton—Boothstown—Swinton and Swinton—Walkden—Little Hulton—Howe Bridge tram routes of the South Lancashire Transport Company were both replaced by trolleybuses on August 19, 1931, and linked together as one through service, although it is obvious from the map that its zig-zag nature prevents any through traffic being carried. The throughout journey took 72 min., with 4 min. intermediate layover at Swinton Church; this was reduced to 62 min. from September 1 for the new motor buses.

The Lowton to Bolton tramcar service continued until December 16, 1933, being replaced the next day by L.U.T. motor bus route 48 from Lowton to Leigh and S.L.T. trolleybuses from Leigh to Bolton. From Four Lane Ends into Bolton trams continued to operate for the time being, though only those of Bolton Corporation and the company cars. They were replaced on March 29, 1936, by additional trolleybuses giving short workings on this section, for which the four Bolton vehicles in the bright red S.L.T. livery, already mentioned, were provided; these were always garaged in Atherton depot and treated as part of the company fleet.

Turning Circles

An Act of July 12, 1932, authorised the construction of 13 turning circles or reversing triangles, but nine of these had already been erected and opened to traffic. Of the others, two were on the Leigh—Bolton route and two were never built. At the Farnworth terminus trams had previously used Long Causeway in both directions, as did trolleybuses for a year or so, but in 1932 new wiring was erected for a one-way loop via Long Causeway, Market Street, Brackley Street and Albert Road. Thereafter the original terminus continued to be used three days each year, when Brackley Street was closed for the annual fair. Regarding depots, the Howe Bridge, Platt Bridge and Swinton premises continued to be used without drastic alteration.

Leigh to Bolton and Mosley Common trolleybuses have latterly all been of the highbridge variety, but the other routes were restricted to lowbridge buses because of three low railway bridges. There was a 14 ft. 9 in. bridge under a mineral railway at a place called Dangerous Corner between Atherton and Hindley on the St. Helens route; this was dismantled in 1953 and enabled St. Helens (though not L.U.T.) to provide a highbridge bus once or twice in the last year or two. There is a 15 ft. 6 in. brick arch under a colliery railway between Worsley and Swinton; this was high enough to take a highbridge trolleybus once or twice in emergency in recent years if it kept to the centre, but only a lowbridge vehicle could use the sides of the road. The third bridge is also under a colliery line, between Little Hulton and Farnworth. It is of steel girder type, with 14 ft. 6 in. clearance, and although it will just take a highbridge motor bus a highbridge trolleybus is out of

* Previous portion appeared November 1.

the question, due to the extra clearance required for the trolley busses and poles. The steel girder bridge underneath the passenger railway at Howe Bridge Station is just high enough to accommodate highbridge trolleybuses provided they drive very slowly; the poles come down to roof level. Last year the bridge was completely renewed, but with the same alignment.

In the centres of both Atherton and Tyldesley, owing to narrow streets, there have always been sections of one-way-street working in both trolleybus and tram eras. Gradients are not very severe on any part of the system. A little to the south of Platt Bridge the trams used a 300-yd. stretch of private reserved track, behind the houses in the main road. This continued until 1956 as a reserved-track trolleybus route (the only one in our experience except in Milan), and as the road was unadopted and not made up it was most uncomfortable for the bodywork of both vehicles and passengers.

Rolling Stock

Turning now to the vehicles, the original 1930 route was inaugurated with 10 six-wheeled Guy trolleybuses with lowbridge bodies by Roe seating 56. Two more of the same type followed for the Haydock extension, with another 18 soon afterwards for the Farnworth route. Sixteen four-wheel Guys with 48-seat lowbridge bodies by Roe were purchased in 1933 for Leigh to Bolton. One more six-wheeled Guy, formerly a demonstrator, was acquired in 1935, but after being on hire to Southend Corporation for a long time it was delicensed in 1945 and sold in 1950. The Bolton-owned vehicles of 1936 were Nos. 48-51, six-wheeled Leylands with 64-seat highbridge Roe bodies. The company purchased two more of the same type in 1937 and another six in 1938. After the first few years 48-51 usually worked a supplementary Leigh—Atherton—Mosley Common service, and the locals inside Bolton area were usually worked by the 54-59 batch.

Four four-wheeled Karriers were purchased in 1943, with 56-seat highbridge Weymann bodies, followed by another two in 1944, and finally Nos. 66-71 of 1948 were six-wheeled Sunbeams with 64-seat highbridge bodies by Weymann. It will thus be seen that increasing traffic on routes that were at first worked with a total fleet of 51 eventually required 70 vehicles, only one being withdrawn before 1955. The first 30 vehicles, of lowbridge type, were always on the St. Helens and Farnworth routes. The next 17, also lowbridge, started on the Bolton—Leigh service but gradually migrated to the other two in view of the fact that all new purchases after 1936 were of highbridge type and hence restricted to Bolton—Leigh.

For tower wagons there were a Leyland Badger of 1936, and a conversion of an old 1929 Titan bus from the L.U.T. fleet. An L.U.T. Leyland Lion bus of 1930 was also converted into a pole-erecting lorry, and a Tiger of 1937 was converted more recently into a breakdown tender.

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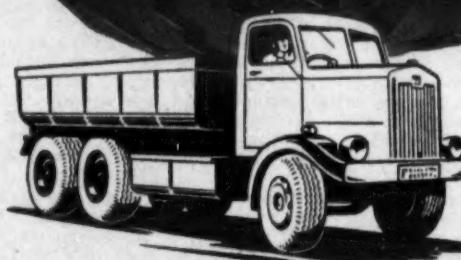
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The tramway from Farnworth (Black Horse) through Kearsley and Clifton to Pendlebury was replaced on June 8, 1931, by an L.U.T. motor bus service that was later extended to Swinton. Numbered 20, alternate journeys have more recently been extended beyond Swinton via Patricroft and Irlam to Glazebrook. The services from Bolton via Moses Gate to Walkden and to Black Horse both continued to be worked by Bolton Corporation tramcars until November 12, 1944, when they were replaced by joint services (42 and 43 respectively) of Bolton and L.U.T. motor buses. The eight Farnworth bogie trams, having still survived and long outlasted all the S.L.T. tramcars, despite two changes of ownership, were then transferred to Bolton's Horwich route. The Black Horse service, in its 45 years, had a greater variety of operators than most routes elsewhere, being worked successively by the Bolton company, Bolton Corporation, Farnworth U.D.C., South Lancashire, Bolton Corporation, and Lancashire United. The S.L.T. obtained an Act on June 30, 1948, authorising it to run trolleybuses from Moses Gate to Walkden and Moses Gate to Black Horse, but the conversion was not proceeded with.

Curtailment

The first curtailment of trolleybus service was on March 25, 1956, when, within four days of their 20th anniversary, the short workings inside the Bolton area on the Leigh-Bolton service ceased, being replaced by Bolton Corporation motor buses. The four Bolton trolleybuses were then towed into one of the Bolton garages for the first time, and later sold to a scrap dealer at Stratford-on-Avon. The whole of the Atherton-St. Helens service was abandoned on November 11, 1956. It was replaced by a joint service of S.L.T. and St. Helens Corporation motor buses, working exactly as previously. The headway remained at 12 min., but journey time was reduced from 68 to 63 min. The S.L.T. trolleybuses never carried route numbers, but this new motor bus service received the number "1." Existing L.U.T. route numbers then ranged from 8 to 81, also 87-88.

Supplementary Motor Buses

Although, as already stated, many of the 1930-31 lowbridge trolleybuses on the Farnworth route survived right to the end, about half of them were withdrawn in 1956, rather more than the equivalent of those used on the abandoned St. Helens route. Consequently at rush hours in 1957-58 there were not enough lowbridge trolleybuses, and lowbridge Guy Arab motor buses have regularly been working on some of the Swinton trolleybus timetings, at trolleybus fares. These have displayed the route number "TT." A peculiarity in the company's timetable books in recent years is that the Leigh-Bolton service has been announced as a "Trolley Vehicle Service," Atherton-Farnworth as "Trackless Trolley Buses," and Leigh-Mosley Common as "Trolley Bus Service."

All three of these routes were abandoned on August 31 last and replaced by motor buses on September 1. Leigh-Bolton is numbered route 82, the frequency remains at 8½ min., and journey time is reduced from 40 to 38 min. It has become a joint service with Bolton and Leigh Corporations, and Leigh provides one vehicle, a Dennis Loline, one of two which it has recently purchased. The reluctance of the company to admit Leigh into the partnership delayed the conversion, as Leigh, although anxious to join in, had no powers to work trolleybuses. Until the conversion it was necessary for all passengers to rebook at the Bolton boundary at Four Lane Ends, and receive a separate T.I.M. ticket for each part of the journey, the throughout fare thus being 8d. plus 4d. This has now been eliminated, thus reducing the strain on conductors, and through tickets at 1s. are issued. There never was any rebooking at the Leigh boundary, since Leigh, unlike Bolton, did not own its end of the trolleybus (or tram) route.

The Last Stages

The Atherton-Swinton-Farnworth service is now numbered 83, though whether it is still necessary for it to survive in such a zig-zag manner seems doubtful. It is still necessary to rebook, as before, at Swinton Church, where the buses wait 3 min. Fares are 1s. and 9d. for the two sections. Frequency remains every 15 min. with, as before, a 7½-min. service in weekday rush hours on the Swinton-Farnworth section. The supplementary Leigh-Atherton-Mosley Common service, which now becomes 84 and runs only in the afternoon and early evening, has been reduced for most of this time from quarter-hourly to half-hourly, and also reduced from 32 to 28 min. running time. The through running transfer return tickets which passengers could formerly use, by changing at Atherton at times when the through service was not in operation, have now been discontinued. Short workings by Bolton Corporation buses on route 82 inside its own area, all formerly numbered 17, have now been renumbered to show 79 from Bolton to Daubhill Station (the shortest of the three), 80 Bolton-Hulton Lane, 82 Bolton-Four Lane Ends, and 82 for the full route. This would seem most methodical, were it not that the L.U.T. already uses the numbers 79, 80 and 81 in the Warrington area.

The Atherton-St. Helens trolleybuses were replaced by 14 Daimler motor buses with M.C.W. Orion 39-seat highbridge bodies. They carried the Lancashire United fleet name, but their legal owner from November 1956, until August 1958, was the South Lancashire company. The latter has been wound up, as from September 1, and hence the ownership of these Daimlers has now been transferred from the S.L.T. to the L.U.T. The Leigh-Bolton service is now worked by new 30-ft. long Guy Arabs with 73-seat bodies, but Atherton-Farnworth and Leigh-Mosley Common are worked by older Guy Arabs dating from 1949-50. Most of the trolleybuses have been sold to a scrap merchant in Cheshire. They were dumped in a field between Adlington and Prestbury.

On the night of the conversion the last trolleybus to return to Atherton depot was scheduled to arrive at 11.30, and the last to reach Swinton depot

was to do so at 11.41. By comparison with various tramway abandonments we have witnessed this trolleybus abandonment attracted very little public attention, and the last vehicle from Atherton to Farnworth and then back to Swinton, on which we rode, was hardly noticed at all except by a few people at the Farnworth terminus. During the evening all of Swinton depot's trolleybuses had been returned to headquarters at Atherton. Their road-fund licences and insurance expired at midnight; hence as soon as the last trolleybus, with its passengers, arrived at 11.41 p.m., the licence disc was removed and trade plates were attached in order to return to headquarters. The only sign that it was a farewell was a poster stuck on to the front apron by the depot staff reading: "The Last One; to Atherton with the Compliments of Swinton."

A Last Trip

On the morning of September 1 a special trolleybus (No. 71) carried important transport and municipal personalities from Atherton to Leigh, where they transferred to a motor bus which took them to Wigan for a luncheon at the Brocket Arms hotel to celebrate Leigh Corporation's participation in the new joint services. There was no special ceremony to mark the abandonment of any of the other sections of trolleybus route. The overhead wires have now been removed from several parts of the routes, but current is still being fed into the section in Atherton town centre. This is to feed a waiting-room and inquiry office there, which have not yet been connected to the public electricity supply and have always been illuminated by traction current. Incidentally the South Lancashire's generating station at Howe Bridge was nationalised on April 1, 1948, but continued to be operated by the S.L.T. on behalf of the Central Electricity Authority.

The long and successful career of the South Lancashire company, following as it has done a consistent policy, must surely be due to the remarkably long periods of service devoted to it by its chief officers. The present parent company, which, as already related, was formed away back in 1905 to take over from the original parent company, was formed almost entirely by the drive and enthusiasm of the Hon. (later Sir) Arthur Stanley, G.B.E., who became the chairman and retained this position for 42 years until his death on November 4, 1947. The general manager from 1901 until his death in December, 1910, was Mr. J. R. Salter, and for the next 45 years this position was occupied by Mr. E. H. Edwardes, O.B.E., J.P., who was also the chairman from 1947 until he retired in April, 1955. Sir Joseph Nall, a director since 1943, was chairman from 1955 until his death on May 2 of this year and was succeeded by the late Mr. H. M. Alderson Smith. Throughout its history all the other directors of the company have held office for a very long period, as also have its two secretaries, H. P. Conibear for nearly 20 years, and J. R. Holt for more than 35 years. Today Sir Robert Cary is chairman, and other directors are Messrs. F. A. Willink, G. F. F. Davies, and J. M. Birch. Mr. C. C. Oakham, who has been the general manager since 1955, was previously the chief engineer of Manchester Corporation Transport, whilst the present chief engineer and traffic manager at Atherton are Messrs. A. H. Gernae and T. Lloyd respectively.

The L.U.T. System

The development of the Lancashire United motor bus fleet is a separate story, although the two companies have always been closely integrated, and worked as one whole. It must suffice here to say that the first bus route was inaugurated in 1920; the L.U.T. fleet has now grown to about 440 units. Lancashire United has a monopoly of bus operation, other than the local Leigh Corporation routes, throughout the whole of the territory enclosed by the areas of Salford, Bolton, Wigan, St. Helens and Warrington Corporations, also (to the south-east) the North Western Road Car Co., Limited.

BRIGADIER R. J. O. DOWSE

Complimentary Luncheon

UNDER the chairmanship of Mr. A. E. Drain, the Metropolitan and South Eastern Area of the Road Haulage Association gave a luncheon in honour of Brigadier R. J. O. Dowse, the retiring Metropolitan Licensing Authority. Mr. Drain welcomed the guests, among whom was Mr. D. I. R. Muir, who succeeds Brigadier Dowse, and outlined the latter's army career between 1912 and 1946. He said that little differences between operators and licensing authority mainly arose from the state of the law, now nearly 30 years old. Was licensing legislation too rigid and drastic for today's operating conditions? He deprecated Socialist endeavours towards integration of transport, really aimed at featherbedding the railways. Competitive free-enterprise haulage was keeping down the cost of living of everyone in the country, adding to productivity and giving a boost to efforts to sell more British goods overseas. They would like to see the licensing authorities give more work to do if that meant an expansion of road haulage.

In his response Brigadier Dowse said he was delighted to see so many he had known in the past 12 years. He had done his best to live up to a high standard and also, within the Acts and regulations, to help all operators whose conduct was right. He would never forget R.H.A. assistance, especially in emergencies such as when 200 tippers were raised over a weekend to mitigate the East Coast flood disaster. The smart turnout of the M.T. Company of the Home Guard was a tribute to Norman Letts and to their chairman that day. He thanked his staff for their work in a difficult area. Although it did not apply to present company he could not resist pointing out that proper maintenance and observance of vehicle records and drivers' hours regulations paid dividends.

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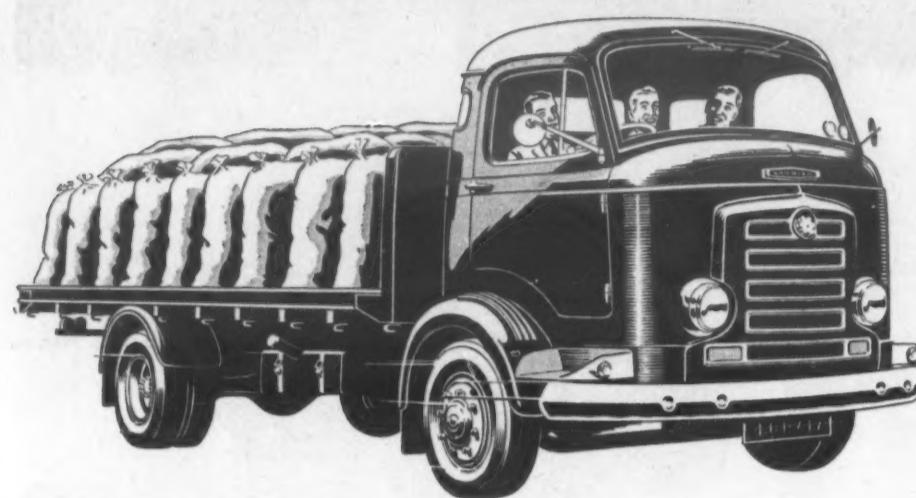
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NEWS FROM ALL QUARTERS**North East Passenger Services**

Passenger trains will be withdrawn from Warthill, Fangfoss and Cherry Burton stations on the York-Hull line of the North Eastern Region on and from January 5.

Saturday Night Holiday Expresses

Special summer holiday expresses from the Midlands and the North to Devon and Cornwall at reduced period fares are being arranged by the London Midland Region next summer on Saturday nights. It is hoped these arrangements will relieve the pressure on the popular Friday night trains. Light refreshments will be served on the special expresses and eight- or 15-day cheap tickets will only be issued up to the seating capacity of the trains.

Eurailpass for Americans

European railways are to sell their new Eurailpass in the U.S.A., Canada, Central and South America, from January 1, 1959. The ticket, which will cost \$125, will be accepted for travel from March 1 onward. It will be valid for unlimited travel in first class during a period of two months on the principal railway lines in the following countries: Austria, Belgium, Denmark, France, West Germany, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden and Switzerland. The ticket will not be sold in Europe.

Railways and Electronic Computers

Delegates from British Railways and from seven foreign railway administrations attended the fifth meeting of the computer working party of the International Union of Railways, held in London on November 25. Their discussions included the preparation of a bibliography of technical papers, the distribution of technical reports, the preparation of a five-language lexicon of technical terms and the standardisation of conventional signs to be used in the inter-administration exchange of computer flow diagrams. The working party session was followed by a two-day information meeting.

Line of Midland Motorway Link

The divisional road engineer of the Ministry of Transport in Birmingham has amplified previous indications about the line of the motorway from the south-west which will join the London-Preston motorway between West Bromwich and Walsall. He states that the three-mile stretch of railway referred to in the original announcement is part of the Western Region Birmingham-Kidderminster line. The new road will take off from some high ground near Roebuck Lane close to the boundary of West Bromwich and Smethwick, cross two canals and the Stour Valley line of the Midland Region (all of which lie in a deep cutting), then, after passing over the main road between Smethwick and Oldbury, run on a viaduct immediately over and following the railway line. It will pass over two stations, Smethwick West, and Oldbury and Langley Green, and will leave the line of railway near Ashes Road, Causeway Green, about three miles from Roebuck Lane.

Motor Scooters by Train

Following the successful introduction of an accompanied car scheme whereby passengers take their cars with them on journeys between main stations on the Kenya-Uganda line, East African Railways and Harbours announces the introduction of a similar scheme for accompanied motor scooters.

Austria Returns German Wagons

Austria has announced that it is now prepared to give back to their German owners some 1,000 railway wagons made over to Austria in 1945, and the wagons are now on their way home. This decision ends a long-fought battle of negotiations between the Austrian Government and the German Federal Republic.

Offer of Ferry Declined

Tynemouth and South Shields County Boroughs have declined an offer by the Tyne Improvement Commission to hand over to them, free of cost, the cross-Tyne ferry service between North and South Shields. Moreover, they are to oppose the Commission's scheme to increase the charge for motor vehicles using the ferry by 6d. and to increase passenger fares from 3d. to 4d.

Italian Electrification

In a progress report on electrification work, it is announced by the Italian Railways that the line between Messina and Catania has now been electrified; travelling time over the 61-mile stretch between the two towns has been cut by 30 min. Work has begun on the further electrification of the line, from Catania to Syracuse, and this is expected to be completed by 1960.

The New Conway Bridge on A55

The new Conway bridge is being constructed for the Ministry of Transport at a cost of nearly £500,000 and will be opened on December 13 by the Minister of Housing and Local Government and Minister for Welsh Affairs, Mr. Henry Brooke. Measuring 310 ft. in length and 31 ft. 6 in. in width, the bridge spans the River Conway at a distance of 60 yd. from the suspension bridge. There is a 22-ft. carriageway with a 7 ft. 6 in. footpath on one side and a 2-ft. rubbing kerb on the other.

C.T.C.C. on Underground Economies

The Central Transport Consultative Committee has decided to inform the Minister of Transport that in its view sufficient consideration has not been given by London Transport Executive to the repercussions of its proposals for curtailing the working day on the Underground. The committee thought that a supplementary fare might be charged from midnight to counter the high cost of late-night services. It also suggested that the closure of the Holborn-Aldwych branch should be deferred until the possibility of raising fares had been considered and called for a deferral of the proposal to close Mornington Crescent Station. It is recommended that the proposed closure of the Acton Town-South Acton branch should be approved.

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COMMERCIAL AVIATION

Italian Air Traffic Control

COMETS TO MONTREAL

MEASURES to improve air traffic conditions over Italy have been announced in London and Rome. They followed talks between the Italian Government and the International Federation of Air Line Pilots' Associations and provide for control of commercial and military flights and improved radio aids. Captain C. E. Jackson, secretary of the federation, who took part in the talks, said subsequently that, had the measures now proposed been in force at the time, the mid-air collision near Rome between the B.E.A. Viscount and an Italian Air Force fighter in October would probably not have occurred. Under the Italian Government programme the military authority will be entrusted with sole control of commercial and military flights over the whole national territory. Active steps will be taken towards the establishment of a European air traffic control agency as between the six countries of the Common Market. There will be a speedy development of the radio aids programme.

Shannon Terminal Building

Shannon Airport is to have a new two storey terminal building which will cost about £250,000. Work is expected to begin almost at once, and will be completed before next tourist season. The new terminal will contain lounges, bar and balcony and a number of the offices now in the duty-free zone.

Comet Service to Montreal

The British Overseas Airways Corporation is to start the first jet service between Britain and Canada on December 18, using de Havilland Comet 4s. It will operate once a week in each direction between London and Montreal. Flights will leave London on Fridays at noon, arriving in Montreal at 5.15 p.m. (22.15 hours G.M.T.), a journey time of 10 hr. 10 min., including a refuelling stop at Gander. Flights to London will leave Montreal on Saturdays at 8.30 p.m. (01.30, Sunday, G.M.T.).

Expansion of Airwork Interests

It has been announced that Airwork, Limited, has concluded an agreement which provides for the inclusion of Morton Air Services, Limited, and Olley Air Service, Limited, in the Airwork group. The two smaller concerns have been associated since the sale of the Olley business by the British Transport Commission. They have been operating from Croydon and their work has included an all-the-year-round service to Rotterdam and seasonal services to Le Touquet and the Channel Islands. Other British concerns in which Airwork is now interested include Air Charter, Limited, and Transair, Limited.

New Fuel Store at London Airport

By opening a valve at a new Shell-Mex and B.P. storage depot at Perry Oaks, on the western side of London Airport, Mr. Airey Neave, Joint Parliamentary Secretary, Ministry of Transport and Civil Aviation, last week initiated the first phase of a scheme which, with Parliamentary sanction, will eventually enable bulk supplies of aviation fuel to be delivered to the airport by pipeline from one of its depots on the Thames. He started fuel flowing through underground pipelines more than $\frac{1}{2}$ mile long to another new depot in the central area. A third depot in the maintenance area, on the south-east side of the airport, will ultimately increase the company's storage capacity there to more than 1,500,000 gal. Mr. C. M. Vignoles, managing director, Shell-Mex and B.P., Limited, said that the company intended in the near future to seek Parliamentary sanction to a Private Bill to enable it to lay down two 6-in. pipelines to the airport from storage eight miles away at Walton-on-Thames. In due course it was proposed to provide a hydrant system. By 1962 they expected the fuel demand to be over twice the present figure and by 1966 more than three times as great. The present phase of the scheme had cost some £600,000.

Welsh Industrialists and Air Travel

The future of air services in Wales has been the subject of a statement by the Industrial Association of Wales and Monmouthshire after a meeting of its executive committee. The association welcomed the decision of Cambrian Airways following its intention announced in September to suspend completely its winter services from Rhoose Airport, Cardiff, to operate, after all, a daily return service linking Cardiff with Manchester, Bristol and the Channel Islands. The committee expressed the view that all-the-year-round operation of an air travel service in Wales was of utmost importance to businessmen. By making full use of the facilities provided, industrialists in Wales and Monmouthshire could promote continuity of such services, encourage airlines concerned to increase the frequency of flights and ultimately extend their routes in additional directions. Such facilities would also be an important additional inducement for industrialists contemplating the establishment of new industries in Wales. The association has accordingly assured the company and the Welsh Advisory Council for Civil Aviation of support for any proposals which may be taken to advance the status of Rhoose Airport and the services operated therefrom.

Future of Southampton Airport

Southampton Corporation has decided to tell the Ministry of Transport and Civil Aviation that it is not prepared to take over the financial responsibility for Southampton Airport. The town council endorsed a recommendation from the Finance Committee, and rejected an amendment put forward by the minority Conservative-Ratepayer group viewing with dismay the Ministry's decision possibly to close the airport, and urging postponement of a final decision by the council until the Ministry gave precise details of its terms of sale. Moving the amendment, Alderman George Radwell argued that, while the corporation should not buy a "pig in a poke," it should be sure that was the case before it turned the proposal down. Southampton as a premier passenger port without an airport was unthinkable. Alderman J. H. Matthews, Labour leader of the council, contended that Southampton Airport, with its limitations of size and safety for modern air traffic needs, could never be developed as a major airport. The Ministry had chosen Hurn as more suitable and less costly in development. For internal air transport and for short hops to the Channel Islands and Paris—the only real function for a local airport outside the national ring—demand was likely to be met by the development of the helicopter and other vertical-lift aircraft. The corporation had already provided for a helicopter landing-place near Southampton Central Station.

BRITISH INDEPENDENT AIR TRANSPORT ASSOCIATION



Eric Rylands.

Mr. ERIC RYLANDS

• • • • •

When the British Independent Air Transport Association agreed at its annual meeting to create the office of president it chose therefor Mr. Eric Rylands, managing director of Skyways, Limited, as already recorded in MODERN TRANSPORT. His connection with the organisation goes back to the time of its formation in 1946 as the British Air Charter Association and it was during his term as chairman from 1949 to 1952 that it adopted in 1951 its present title and constitution. He is, in fact, the only chairman to have held that office for more than one year in succession. Born on June 29, 1909, and educated at Bedford School and St. Catherine's College, Cambridge, Mr. Rylands served in the Royal Air Force Volunteer Reserve from 1937 to 1939, whereafter he was fully engaged on military aircraft repair work throughout the 1939-45 war. Seeing possibilities in air transport operation after the war he established the Lancashire Aircraft Corporation, Limited, and he built up this concern as an operator of charter and, subsequently, of scheduled services. When it became associated with Skyways, Limited, he also became managing director of the latter company and retained both posts until the L.A.C. operations were transferred to British Aviation Services, Limited. Meanwhile Mr. Rylands had been undertaking increased responsibilities. Skyways had commenced the development of its extremely successful coach-air services and its Middle East activities had led to its participation in Associated British Airlines (Middle East), Limited, of which he is a director. Samlesbury Engineering Co., Limited, of which he is founder, chairman and managing director, had widened the scope of its activities to include vehicle bodybuilding, and Eric Rylands, Limited, of which he is chairman and managing director, had also extended its interests. Within the past few weeks, as recorded in our last issue, Samlesbury Engineering has acquired Edgar Percival, Limited, and Eric Rylands, together with David Brown, has obtained a majority interest in Bahamas Airways, Limited. From 1949 to 1952 he was a member of the National Civil Aviation Consultative Council and he now serves on the Air Registration Board and is chairman of the National Joint Council for Civil Air Transport, being the first independent operator to occupy the chair.

IN PARLIAMENT

New London Travel Committee

HEADED BY MR. ALEX SAMUELS

IN the Commons on November 26, the Minister of Transport announced that he had decided to reconstitute the committee he appointed in November, 1956, to consider staggered hours for travel in London—its two-year term of office has now expired anyway—and to widen its terms of reference. The former committee was presided over by Mr. J. Fitzgerald, chairman of the Transport Users' Consultative Committee for the London area; the new London Travel Committee is headed by Mr. Alex Samuels, ebullient chairman of the London and Home Counties Traffic Advisory Committee. Its terms of reference are:

- (1) To consider and set in train where practicable further measures, including staggering of working hours, so as to relieve congestion at the peak periods or—
 - (a) roads within and leading into and out of Central London;
 - (b) services to and from Central London provided by London Transport and British Railways.
- (2) To review changes in the daytime population of Central London, particularly those arising from the erection of new buildings, and proposals for changes in transport facilities, and to endeavour to avoid any consequent increase of crush hour congestion.
- (3) To consider the operation of other bodies concerned and of the public generally in pursuing these objects.
- (4) To recommend to the Minister of Transport and to the British Transport Commission and London Transport Executive as may be appropriate, any measures to further these objects which the committee considers desirable but is itself unable to initiate.
- (5) To report progress to the Minister of Transport at least once a year and to make interim reports as needed.

Membership

The members of the committee, and the bodies appointing them are as follows:

City of London Police.—Colonel A. E. Young.
Metropolitan Police.—(To be nominated).
The City of London.—B. R. Arthur.
London County Council.—Richard Edmonds.
Road Research Laboratory.—Dr. G. Charlesworth.
London Chamber of Commerce.—Lord Ebbisham.
Trades Union Congress.—
U.S.D.A.W.—J. Allan Birch.
T. and G.W.U.—Frank Cousins.
N.U.R.—S. F. Greene.
British Transport Commission.—
British Railways.—D. McKenna.
London Transport Executive.—B. H. Harbour.
Road Haulage Association.—R. Morton Mitchell.
British Employers' Confederation.—George Pollock, Peter Cadbury, Miss Enid Hopper.
London Area Transport Users' Consultative Committee.—L. G. Burleigh.
Ministry of Transport.—C. H. Wykes, R. E. M. Le Goy, C. E. Hollinghurst.

Capacity of Watford By-Pass

I estimate that traffic along the Watford by-pass may double when the Aldenham spur to the St. Albans by-pass comes into use. Schemes are in preparation for more than doubling the capacity of this route, but I cannot yet say when work will start. (Minister of Transport, in a written reply.)

Purchase Tax on Commercial Vehicles

SIR W. ROBSON BROWN had a question addressed to the Chancellor of the Exchequer, asking him to consider reducing purchase tax on all commercial vehicles at an early date, "bearing in mind that these vehicles form part of the plant and machinery of industrial and commercial undertakings and are in a category different from ordinary motor cars, and in view of the fact that the commercial vehicle industry is suffering a recession in trade, and that such remission would be of advantage both in their home and export trade." MR. F. J. ERROLL, Economic Secretary to the Treasury, promised to keep the point in mind. MR. G. NABARRO had the day previously succeeded in getting the Chancellor himself to reply on the same subject. He based his argument on a decline in the British share of world exports of commercial vehicles which, he said, was the result of home tax, and the fact that purchase tax was slowing re-equipment of fleets at home. MR. HEATHCOAT AMORY: My hon. friend has started his campaign rather early this year. It would be very dangerous to start agreeing with him at this early stage.

Forthcoming Events

December 6.—Stephenson Locomotive Society (North Western). Paper by Mr. R. A. Savill, "North Eastern Region of British Railways." At Y.M.C.A., Fargate, Sheffield. 6.30 p.m.
Stephenson Locomotive Society (North Eastern). Paper by Mr. K. Hoole, "North Eastern Railway 4-4-0s." At Griffin Hotel, Boar Lane, Leeds. 7.30 p.m.

December 8.—Institute of Transport. Henry Spurrier Memorial Lecture by Mr. E. R. L. Fitzpayne, "The Problem of Wages." At 66 Portland Place, W.1. 5.45 p.m.
Institute of Transport (Sheffield). Paper by Major-General Sir Reginald Kerr, "British Transport Waterways." At Royal Victoria Hotel, Sheffield. 6.30 p.m.

December 8-12.—Smithfield and Agricultural Machinery Show. At Earl Court.

December 9.—Institute of Transport (Yorkshire). Paper by Mr. H. N. Tuff, "Some Experiments with and Prospects of the Passenger Loadimeter." At Griffin Hotel, Boar Lane, Leeds. 7.30 p.m.

Industrial Transport Association. Paper by Mr. N. W. Wood, "Transit Packaging in Relationship to Safety and Economy." At Royal Society of Arts, John Adam Street, W.C.2. 7.30 p.m.
Institution of Mechanical Engineers (Automobile). Papers by Messrs. D. F. Beaumont, R. Clink and C. A. Beard, "Torsional Vibration," "Engine Balancing," and "Valve Gear Design." At 1 Birdcage Walk, S.W.1. 4 p.m.

Institute of Transport (Portsmouth). Paper by Mr. A. V. Hughes, "British Waterways." At Chamber of Commerce, Portsmouth. 7 p.m.

Institute of Transport (Yorkshire). Paper by Mr. G. McKay, "Some Aspects of Bus Maintenance." At Griffin Hotel, Leeds. 6.30 p.m.

December 10.—Institution of Locomotive Engineers. Paper by Messrs. J. S. Scott and J. K. Lord, "Maintenance and Overhaul of Electric Locomotives and Multiple-Unit Sets of the Manchester-Sheffield-Wath Electrification." At Institution of Mechanical Engineers, 1 Birdcage Walk, S.W.1. 5.30 p.m.
Royal Society of Arts. Paper by Mr. C. T. Brunner, "Large-Scale Organisation and Change: A Study in Oil Marketing." At John Adam Street, W.C.2. 2.30 p.m.

December 11.—Institute of Transport (Dundee). Paper by Mr. J. W. Mitchell, "The Elements of Distribution." At Queen's Hotel, Dundee. 6 p.m.
Institute of Transport (Northern Ireland). Paper by Mr. J. A. Young, "The Lawyer Looks at Transport." At 21 Linenhall Street, Belfast. 6 p.m.

Institution of Mechanical Engineers. Joint meeting with Institute of Electrical Engineers. Paper by Mr. C. M. Cock, "The Deltic Locomotive." At 1 Birdcage Walk, S.W.1. 5.30 p.m.

British Railways (London Midland) Lecture and Debating Society. Paper by Mr. E. Whitaker, "The Railways from the Customer's Point of View." At Clerical Staff Dining Club, Cardington Street, N.W.1. 5.45 p.m.

December 12.—Institute of Transport (Northern). Paper by Mr. G. W. Quick Smith, "Road Haulage Then and Now (1933-58)." At Royal Station Hotel, Newcastle upon Tyne. 7 p.m.

North East Coast Institution of Engineers and Shipbuilders. Paper by Mr. R. M. Thwaites, "Economics of Ship Time." At Mining Institute, Newcastle upon Tyne. 6.15 p.m.
Railway Correspondence and Travel Society. Paper by Mr. J. H. Price, "Improving Railway Timetables." At Railway Clerks' House, Eversholt Street, N.W.1. 7.15 p.m.

Electric Railway Society. Paper by Mr. N. F. Reed, "Australian Electric Railways." At College of Technology, Suffolk Street, Birmingham. 7.15 p.m.

December 13.—Motor Industry Research Association. Luncheon. At Dorchester Hotel, London, W.1. 12.30 for 1 p.m.

December 18.—Institution of Locomotive Engineers. At Dorchester Hotel, London, W.1. 7.15 for 7.30 p.m.

LETTERS TO THE EDITOR

Coach v Train

SIR.—As an exponent of the art of proving black is white, Sir Reginald Wilson can have few rivals. He admits (MODERN TRANSPORT, November 15), as he must, that it is cheaper to travel by coach than by rail. ("Why, then, is the railway passenger asked to pay more than the coach passenger?") But he tells us at the same time that "It is simply not true to say that the motor coach is a cheaper form of long-distance transport than the railway." These apparent contradictions he attempts to reconcile by explaining that in the latter context he is talking in terms of seat-miles. ("If we work it out in terms of seat-miles of service offered, the railway seat-mile will cost less than the seat-mile in a coach.") Most of your readers, I fancy, will find that "If" rather indigestible. And they would be right. Seat-miles (which include empty seat-miles) are the unit of economic inefficiency. The unit of efficiency is the occupied seat-mile, i.e. the passenger-mile. That is exactly where the coach has an enormous advantage over the train. It has greater flexibility; the coach operator merely runs more, or less, coaches according to the needs of the traffic. He need not, as in the case of the railways, run vehicles with four or five hundred seats in the hope that the seats get filled during a "surge."

What Sir Reginald is actually saying is this: "Railways could be cheaper than coaches if they were equally flexible." Well, I might be captain of the England Cricket XI if I had wrists as flexible as Mr. May's. To crown it all, Sir Reginald ascribes the whole difficulty to the "restrictive work of the licensing system" which enables the coach operator to run, safe from competition, just that volume of service which he can keep pretty full year in and year out."

One-Sided Arrangement

The licensing system indeed! This is the system which allows the railways to object to coach services but does not allow the coaches to object to railway services. And for over a quarter of a

century the railways have taken any and every opportunity in the traffic courts to restrict and hamstring the coaches. To suggest that this one-sided arrangement is welcomed by or works for the benefit of coach operators is not only quite untrue but is, moreover, a reflection on the ability of coach operators to know what is good for their own business.

If Sir Reginald Wilson believes that it is the restrictions placed on the coach services which have made them so damaging to the railways, perhaps he will reflect that such restrictions have been placed on them as a result of deliberate railway policy. And, having now come to the conclusion that it has been the wrong policy, perhaps he will take steps to ensure that in future the railways cease their objections to coach services.

This letter is in no way intended as an attack on the railways, but if the country is to be asked to find them yet another £25 million, it is not unreasonable to insist that the basic facts are not misrepresented.—Yours faithfully,

F. J. SPEIGHT,
Chairman,
Passenger Vehicle Operators
Association.

146 New Bond Street, W.1.

First Railway Excursion

SIR.—From time to time we are asked which was the first publicly advertised railway excursion train. In "The Thomas Cook Story" Mr. John Pudney gives pride of place to a special train from Wadebridge to Bodmin to allow the people of Wadebridge to witness the public execution of two brothers, Lightfoot by name, convicted on a murder charge. The date is given in his book as 1838.

Recent research by Mr. C. R. Clinker has shown that this morbid event in fact took place two years later, on April 13, 1840, and it seems that it cannot, after all, claim pride of place in railway excursions.

The earliest we can find is that which the London and Southampton Railway ran on May 30, 1838, to take people to Epsom Races; this was advertised in *The Times* of the previous day, and attracted many more people than could be accommodated. Does any reader know of any publicly advertised railway excursion of earlier date?—Yours faithfully,

D. INKPEN,
Archivist,
Thos. Cook and Son, Limited.
Berkeley Street,
London, W.1.

Midland "Red" Double-Deckers

SIR.—In your article (MODERN TRANSPORT, November 15), describing the latest Midland "Red" developments in double-decker design, you state: "It may be recalled that when, in the early thirties, double-deck operation was resumed after an interval of some years, a front entrance design was used."

In the interest of accuracy, you may care to recall that the first double-deckers built after the period you mention were all rear entrance—the first, HA7329, being an experimental design with 48 seats, followed by a batch of fifty having 55 seats, and numbered HA8001 to HA8050. The original fleet numbers of these were 320 and 1001-1050, respectively, and the 1945 fleet numbers were 1319 and 1370 to 1419 (but not in order).

Almost throughout the life of this class they were stationed at Leicester area garages, except in the very early days when a few were at Bearwood, Digbeth, Bromsgrove and Worcester. One, HA8002, was sold, I believe, to Northern General fairly early in its life.—Yours faithfully,

JOHN L. BROWN.

Churchward,
Bromsgrove Road,
Romsley,
Birmingham.

[Our correspondent is correct in stating that the first 51 B.M.M.O. double-deckers had rear entrances. These appeared in 1932-33. In May, 1922, a front-entrance double-deck body had been evolved by the company for mounting on Tilling-Stevens chassis, but this type was not perpetuated. In 1933 the first of the FEED model with front entrance entered service to be followed by 334 of a generally similar type of body. Editor, MODERN TRANSPORT.]

MODERN TRANSPORT
DECEMBER 6, 1958

BOOK NOTICES

Trade and Technical

GLASGOW TRAMWAY AND RAILWAY ROLLING STOCK. (Glasgow: The Scottish Tramway Museum Society, 46 Wellshot Drive, Cambuslang. Price 2s. 6d.) This is a fleet list of all current or past Corporation tramway rolling stock and of Underground cars now in use. The illustrations have the merit that most cars are shown in what was presumably their original livery. There is no lack of "vital statistics" for each of the tramcar classes.

THE LITTLE RED BOOK, 1958-59. (London: Passenger Transport, Avenue Chambers, Vernon Place, W.C.1. Price 8s.) The latest edition of this handy reference book to the road passenger transport industry in the British Isles totals close on 500 pages and the adjective little may yet cease to be appropriate. The extra information which has been included is most useful and the increased thickness does not prevent its being pocketed. It is one of those books that are so useful on the desk and vanish only too easily when one is not looking.

TRAINS AND TRACTORS. Drawn, painted and rhymed by Hamilton Ellis. (London: George Allen and Unwin, Limited, 40 Museum Street, W.C.1. Price 6s.) The creator of this little book first became known to the general public as the author of some very lively boys' adventure stories. Here in a small batch of contrasted drawings and paintings he has set his sights at a lower age group. Pleasant, if hardly inspired, rhymes link the pairs and the book should help to induce appreciation of transport among the young. The price seems somewhat high.

COMMERCIAL MOTOR TABLES OF OPERATING COSTS. (London: Temple Press, Limited, Bowling Green Lane, E.C.1. Price 3s.) Opportunity has been taken to completely revise the vehicle classifications in the current issue of these tables in order to bring them into line with modern trend—curiosities such as petrol-engined double-deck buses or eight-wheeled lorries no longer figure. There is a ready reckoner included so that in respect of any vehicle for which the fuel consumption is accurately known the average cost figure indicated in the tables may be replaced by an ascertained figure.

RAILWAY COMMERCIAL PRACTICE. SUPPLEMENT NO. 2. By H. F. Sanderson, M.Inst.T. (London: Chapman and Hall, Limited, 37 Essex Street, W.C.2. Gratis.) A second supplement to Volumes I and II of *Railway Commercial Practice* has been issued by the publisher free to the possessors of these volumes. Useful notes are given on the recent changes in the organisation of British Railways, on the settlement of the problem of penetrating lines and on the current position regarding railway charges. Students will thus be able to bring their information completely up to date with the aid of this supplement.

THE TRAVEL TRADE. By L. J. Lickerish and A. G. Kershaw. (London: Practical Press, Limited, 1 Dorset Buildings, Salisbury Square, E.C.4. Price 42s.) This is a serious study of the travel industry by the deputy director-general of the British Travel and Holidays Association and by a former colleague. The thoroughness with which they have tackled the theme is indicated by the fact that 100 of the 356 pages represent appendices. The development of the industry is carefully traced and there are also some interesting deductions as to its probable lines of development. It is slightly insular in its approach but makes plain the dependence of Britain upon foreign visitors.

BRITISH PORTS AND SHIPPING. By Henry Rees. (London: George G. Harrap and Co., Limited, 182 High Holborn, W.C.1. Price 18s.) Readers of MODERN TRANSPORT will be well aware of the author's knowledge of the maritime activities of Great Britain, whether it be the development of its ports or the functions of its coastwise traders. This book does not cover every port and the traffic it handles, but it nonetheless embraces the major groups and their relation to their trading hinterland. Occasionally the transport-minded reader may feel that the aim of simplification for the general public may have been carried too far, but the assembly of facts is impressive and the enthusiasm with which they are put over is infectious.

DIRECTORY OF RAILWAY OFFICIALS AND YEAR-BOOK, 1958-59. (London: Tothill Press, Limited, 33 Tothill Street, S.W.1. Price 40s.) The preface in this, the 64th year of publication, seems slightly apologetic because the inclusion of a considerable amount of additional information has caused an increase in the number of pages. Such doubts are groundless for it would take much to deter the users of this handy and comprehensive reference book. The additions include a new section giving details of locomotive and rolling stock suppliers throughout the world. These are classified alphabetically both under countries and under products. Information about Polish and Roumanian railways has been brought up to date officially while that for the U.S.S.R. was current at January 1, 1958.

CONTINENTAL HANDBOOK. (London: The Royal Automobile Club (Associate Section), Pall Mall, S.W.1. Price 6s. 6d. to members, 10s. 6d. to non-members, from all R.A.C. offices.) The 1958 edition of this invaluable guide to Continental road travel appears at an opportune time when overseas bookings through the R.A.C. are already showing a 25 per cent increase over those for 1957. New features are that all towns on the Continent are now clearly denoted by map references and the hotel list is printed in a new easier-to-read type face. The handbook numbers more than 630 pages, with the addition of a 32-page atlas covering Europe from Portugal to Yugoslavia and northwards to Norway and Sweden, as well as many popular island holiday resorts in the Mediterranean and street plans of many major towns and cities.

THE B.P. BOOK OF I.A.T.A. AIRLINES. (London: The B.P. Aviation Service, Britannia House, Finsbury Circus, E.C.2. Price 3s. 6d.) Produced originally for prestige purposes, the sponsor has now been inspired to make the book available to the general public, either by direct application or through W. H. Smith and Son, Limited. It contains in colour the aircraft liveries and badges of the members of the International Air Transport Association. This work has been executed admirably by John Stroud and we would commend also the ingenuity with which the activities of each operator have been summarised in a paragraph. Liveries change even faster than types of aircraft, but the book makes a very pleasant record of things as they were this summer and is certainly good value for money.



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TEN-WHEELED DIESEL LOCOMOTIVE

Metrovick-Crossley Units on L.M. Region

2—ENGINE AND ELECTRICAL EQUIPMENT*

THE wheels of the London Midland Region CoBo diesel-electric locomotives with Crossley engines and Metropolitan-Vickers electrical equipment are of the pressed-disc type with separate tyres profiled to British Railways standard. Axleboxes are of the Hoffmann parallel roller-bearing type with pads for end location of the axle. They are oil-lubricated and fitted with renewable manganese steel liners which slide on similar liners on the horn cheeks. Two of the boxes are fitted with special covers, one for a mileage counter and the other for a speedometer generator. All wheels have clasp brakes, operated through equalised brake rigging by three cylinders on the three-axle bogie and two cylinders on the two-axle bogie. All the cylinders are mounted on the headstocks. Grouped nipples are provided for grease lubrication of the moving parts of the bogie.

Cab Equipment

The main driving controls are the master controller and the brake valves. Instruments comprise a main generator ammeter and engine tachometer, brake gauges and speedometer. Three indicator lights—"engine stopped," "wheelslip," and "alarm"—follow a B.R. standard system. Each lamp is normally dim, and comes up to full brilliance under fault conditions. Illumination of these lamps under dim conditions, and also the intensity of the instrument lights, can be adjusted by individual variable resistances to suit the driver's requirements under all conditions between brilliant sunshine and total darkness. Tubular electric heaters for the cab and individual foot warmers are provided. Demisters are fitted for the outer front windows, using heated air fed from the traction motor cooling system. Other factors making for a comfortable cab and good driving conditions are the adjustable seat, the compact layout of controls

lates water which cools the scavenging air and the lubricating oil. The same motor is also used to drive a crankcase exhaust fan, which maintains the crankcase at a slight vacuum.

Cooling equipment comprises a pair of radiator panels mounted inside air ducting which connects openings in each body side to a motor-driven axial-flow fan mounted in the roof. The engine-jacket cooling water temperature is kept close to the optimum figure by thermostatic control of the fan speed. Both radiator panels are of the Serck double bank type, with sectional elements easily removable for cleaning or renewal. The outer banks are used for the scavenging air and lubricating oil cooling water, and the inner for the engine jacket cooling water. Safety devices ensure that the engine is automatically shut down in the event of overspeed, low oil pressure, low cooling water pressure, or high cooling water temperature. The exhaust silencer, which is mounted on the generator, is lagged with sprayed Limpet asbestos and is cleated over. Twin outlets are provided for the exhaust gases, which are directed away from overhead contact wiring, which may be contaminated.

Generators

The main and auxiliary generators, both direct current machines, are of integral construction. The frame is flange-mounted on the end of the engine, and the armatures are mounted on a common hollow shaft, which is solid-coupled to the engine crankshaft at one end and carried on a single roller bearing at the other. The main generator supplies power to the five traction motors, the excitation being automatically controlled on eight of the ten master controller notches by the load regulator. It is an eight-pole machine with two separately excited field windings and a counter compounded



View of the driving position in the CoBo locomotive and, right, the Crossley engine coupled to Metropolitan-Vickers main and auxiliary generators and the Worthington Simpson air compressor

series winding, which is also used when motoring from the battery for starting the engine. The continuous ratings at 625 r.p.m. to BS 173/1941 are 750 volts and 1,070 amperes or 475 volts and 1,650 amperes, 625 r.p.m.

The auxiliary generator supplies power for all motor-driven auxiliaries, battery charging, control equipment, lighting, cab heating, main generator excitation, and train-heating boiler controls. It is separately excited from the battery, and the output voltage is regulated to 110 volts d.c. over the full range of engine working speed and load. Continuous rating is 110 volts, 62 kW, at from 625 to 400 r.p.m. Both generators are insulated with Class B materials. They are inherently self-ventilated by a fan. Additionally, the generator and boiler compartment is pressurised, so that the airflow through the generators is considerably augmented without the provision of complex sheet metal air ducts.

The engine-generator set is resiliently mounted in the locomotive at three points, one below the engine base and one at each side of the generator. The mountings are of the Dyna-Focal type, whereby circular Metalastik bonded rubber-to-metal sandwiches are placed on inclined faces, with axes focusing at a point vertically above the centre of gravity of the engine generator set. At the engine mounting, two such assemblies are used one behind the other, and one assembly is used at each side of the generator. In order to retain the set in position in the case of violent buffing shocks or other mishaps, a rubber-covered buffer is built into the mounting assembly at the engine, and pillars fitted with a collar and pinnae nut pass through clearance holes in the generator feet, thus positively limiting the movement of the set on the rubber mountings to $\frac{1}{4}$ in. in all directions.

Traction Motors

Each of the five axles is fitted with an MV137BZ traction motor, which is a four-pole series-wound machine of the nose suspended axle-hung type. The motor is supported on the axle by two white-metal lined sleeve bearings, and the resilient nose suspension consists of a link between bogie transom and motor frame. The link is fitted with Silentbloc bushes at each end. A similar link placed laterally between the bogie side frame and the motor frame prevents "side slog" of the motor on the axle with a view to maintaining the good riding qualities of the locomotive, with consequent reduction in wear and tear on the track.

The drive to the axle is through totally enclosed single-reduction spur tooth gears with a ratio of 15 to 67, the gearwheel having torsional resilience between hub and rim. Provision is made for removal of the pinion from the armature shaft by oil injection. The motors are force ventilated with cooling air from the traction motor blowers in the locomotive body, which deliver the air via ducting in the underframe and flexible rubber bellows between the underframe and the motors. The continuous rating to BS 173/1941 is 475 volts, 330 amperes, 180 h.p. at 510 r.p.m., with 1,250 cu. ft. per min. ventilating air.

Fuel System

Crossley port-controlled spill type fuel pumps are used; injectors are of C.A.V. manufacture. Fuel is lifted from the main tank to a service tank in the roof by an electrically driven gear-type transfer pump. Lubricating oil is supplied to the main bearings, the connecting rod large and small end bearings, the pistons, and other parts by a gear-type pump chain-driven from an extension of the crankshaft. The oil circuit goes through Vokes full-flow felt filters and through a cooler. The engine has been simplified by the use of electrically driven water pumps in place of the mechanically driven pumps used on earlier applications. The main jacket-water pump motor also drives an auxiliary lubricating oil pump which circulates oil through a Phillips by-pass magnetic filter. The scavenging water pump, also motor driven, circu-

lates water which cools the scavenging air and the lubricating oil. The same motor is also used to drive a crankcase exhaust fan, which maintains the crankcase at a slight vacuum.

METROPOLITAN-VICKERS 1,200 h.p. Diesel-Electric

Locomotives for BRITISH RAILWAYS

are fitted with . . .



One Piece Cast Steel Bogies

(of 'Commonwealth' type, designed in collaboration with Metropolitan-Vickers Electrical Co. Ltd. and General Steel Castings Corporation, U.S.A.)

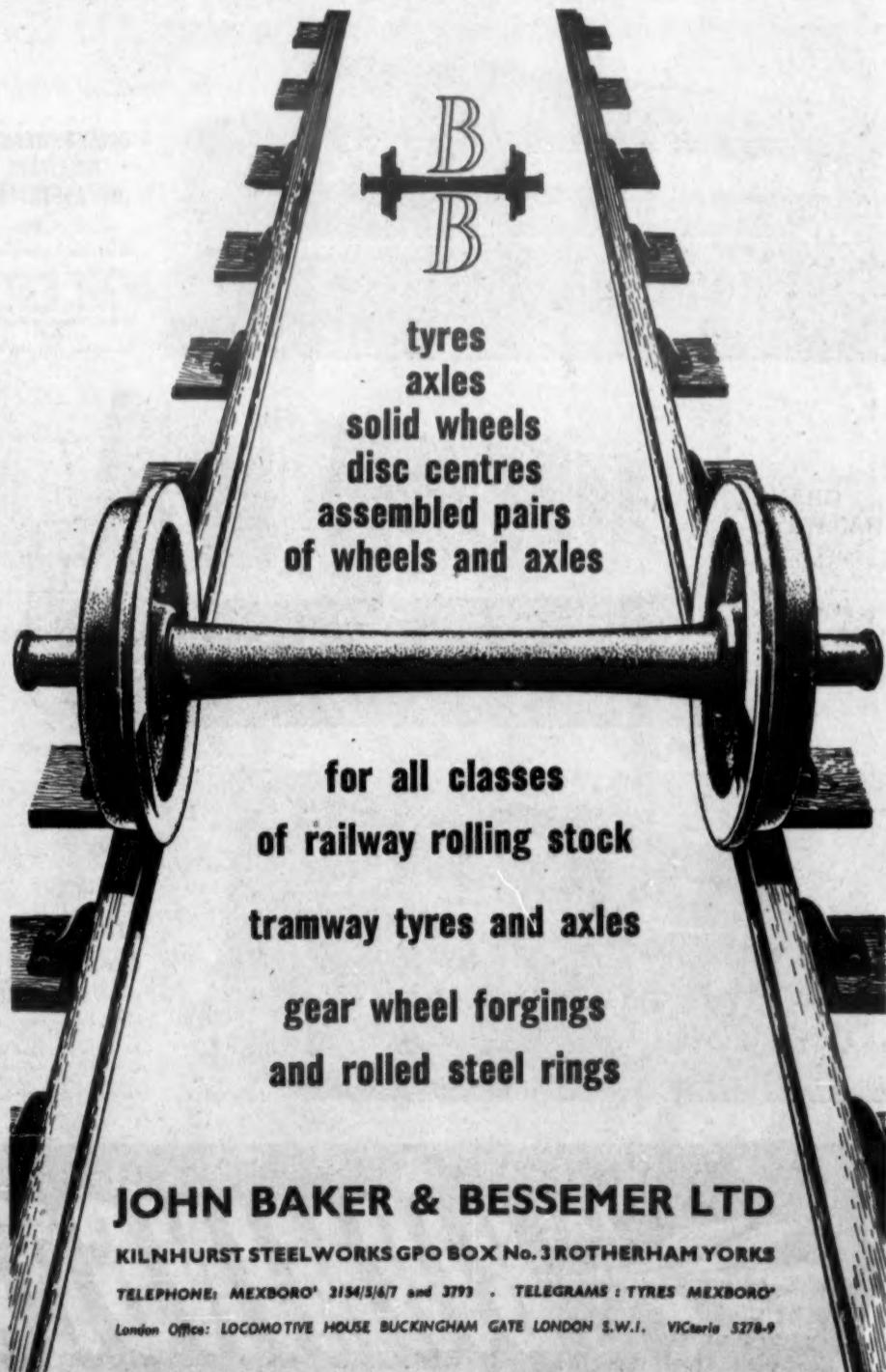


which require a minimum of maintenance and ensure a maximum of locomotive availability



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Chosen for MIDLAND REGION MODERNISATION

One of the 1,200 h.p. Metrovick diesel-electric locomotives for the London Midland Region shown on a passenger run.

METROVICK Diesel-electric traction

The new 1,200 h.p. Co-Bo Diesel-electric locomotive was designed and constructed by Metropolitan-Vickers. It is one of twenty such locomotives ordered from the Company by the British Transport Commission as part of the plan for faster, cleaner and more efficient services on the Midland Division of the London Midland Region.



METROPOLITAN-VICKERS

ELECTRICAL CO LTD TRAFFORD PARK MANCHESTER 17

As A.E.I. Company

Leading electrical progress in railway traction

The motors and generators were built at the Sheffield Works, the control gear was made at Trafford Park Works and the mechanical parts at Metropolitan-Vickers-Beyer-Peacock Ltd., Stockton-on-Tees.

AUTOMATIC COUPLER

Unit With Vacuum Connection

THE largest automatic coupler manufacturer in the world outside America, English Steel Castings Corporation, Limited, has been making automatic couplers for many countries, particularly in the British Commonwealth, for the last 30 years and has supplied nearly one quarter of a million couplers. Apart from supplying couplers from this country it has proposed designs of standard forms of coupler for manufacture in countries such as South Africa and India.

With this very wide design and manufacturing experience of couplers it has been a natural sequence that the company, which is, of course,



Mr. A. B. B. Valentine with Mr. T. H. Summerson and Sir Brian Robertson having the E.S.C.-Willison automatic coupler (prototype Type III for coupling vacuum pipes as well) demonstrated by Dr. C. J. Dadswell, managing director, English Steel Castings Corporation

associated with the English Steel Corporation, should put forward for trials a coupler which appears to meet the comprehensive specification for automatic coupling as laid down by the British Railways. The coupler is simple in operation and very robust, being based on types of coupler actually in use in various parts of the world. Its design is, therefore, based on actual knowledge of operating experience, giving the benefit of known and tried practice without the risk of the pitfalls that sometimes come to pioneers of new designs.

Whilst the prototypes have only been demonstrated to British Railways and not yet tried out in B.R. testing works, English Steel Castings Corporation, Limited, has carried out trials in its own works and was able to demonstrate three 16-ton mineral wagons fitted with these couplers on the visit to Sheffield of Sir Brian Robertson and members of the British Transport Commission.

Automatic couplers properly designed in strength and rigidity are not only safer in operation because men do not have to go in between the wagons, but they prevent derailment and telescoping in collision. The E.S.C.-Willison Type III also connects the vacuum pipes.

THE DIESEL ADVANCES

(Continued from page 3)

towards each other. This is the injection stroke, when the fuel trapped between the plungers is forced back through the rotor and out through the delivery port connection and pipe to the injector. The cycle is repeated for each cylinder in turn.

The amount of fuel injected is dependent on the effective pumping stroke of the plungers. Since the plungers are separated only by inflowing fuel, their outward displacement and hence the quantity of fuel injected at one charge is determined by the amount of fuel admitted to the pumping space through the metering valve. Thus the rollers which operate the plungers do not follow the contour of the camming entirely but contact the cam lobes at points which vary with plunger displacement. The contour of the cams provides for relief of the pressure in the injector lines at the end of each injection cycle, preventing dribble at the nozzles. Non-return delivery valves are unnecessary with the DPA pump. The camming is machined to exceptionally fine limits to provide equal quantities of fuel at each injection stroke for a given metering valve setting and also exact spacing of the cam lobes for accurate phasing, which is thus fixed and cannot get out of adjustment.

Adjustments

Only one adjustment is provided on the DPA pump and this is of the limit of outward displacement of the pump plungers and hence the maximum amount of fuel that can be injected. This is achieved by carrying the cam rollers in shoes which slide in transverse guide slots in the rotor. The shoes have eccentric ears or lugs at each end and these lugs register in eccentric slots cut in circular end plates. The plates are fixed to the rotor by locking screws through elongated holes and by releasing the screws and rotating the plates in relation to the rotor the limit of outward travel of the shoes is increased or reduced due to the shape of the eccentric slots and lugs.

The pressure regulating valve on the pump end plate has two functions. It regulates the pressure of the fuel from the transfer pump and provides a means of bypassing the transfer pump for hand priming when the pump is stationary, thus avoiding the cranking that would otherwise be necessary to fill the metering port and hydraulic head with fuel when starting with a dry pump. The regulating valve comprises a sleeve, a piston and regulating and priming springs so arranged that transfer pressure is controlled by a balance between the regulating spring pressure and the setting of the metering valve at any given moment and excess fuel is passed back to the inlet side of the transfer pump.

(To be continued)

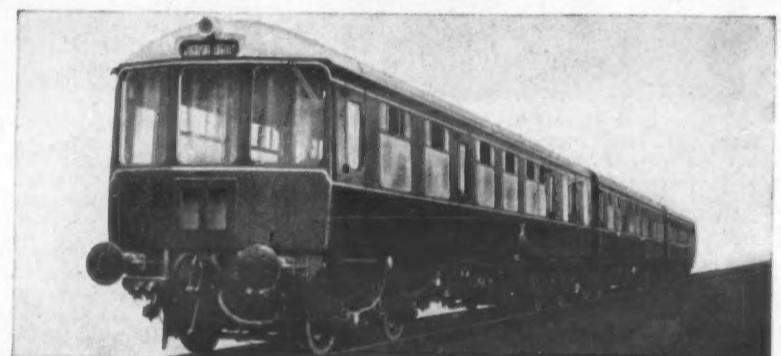
The Metropolitan-Vickers organisation is moving its London offices, hitherto located at 1-3 St. Paul's Churchyard, London, E.C.4, to 33 Grosvenor Place, London, S.W.1 (Belgravia 7011).

Power and telephone links on the new Conway Bridge, to be opened on December 13, were manufactured by British Insulated Callenders Cables, Limited. Air-spaced, dry-core, paper-insulated quad local telephone cable is used, slung across the bridge on cleats. Furthermore, 33-kV paper-insulated power cables of three and four cores, also made by BICC, are installed in the stonework of the bridge.

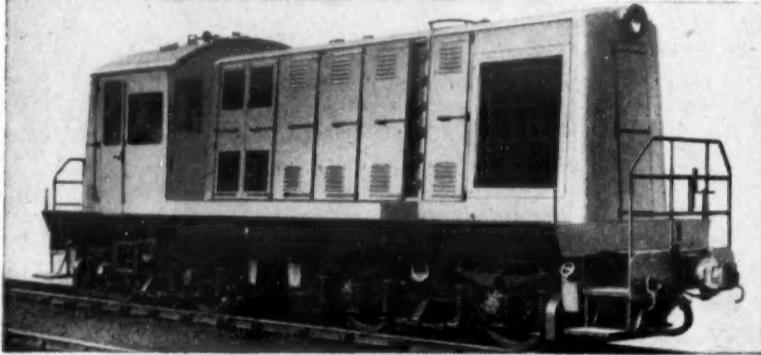


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955 H.P. Diesel-
Electric Locomotive
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In collaboration with
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RAILWAYS
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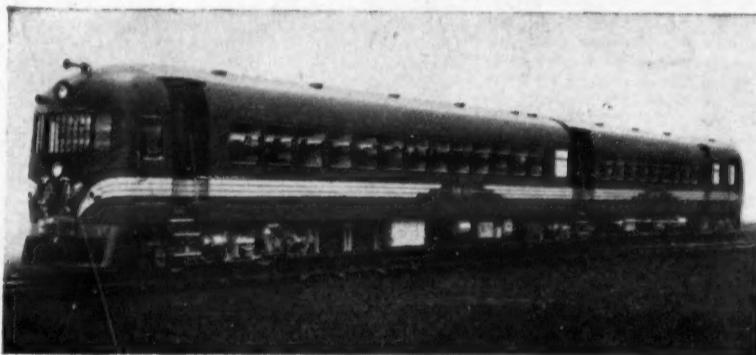


GHANA
RAILWAYS

400 h.p. Diesel
Electric
Locomotive

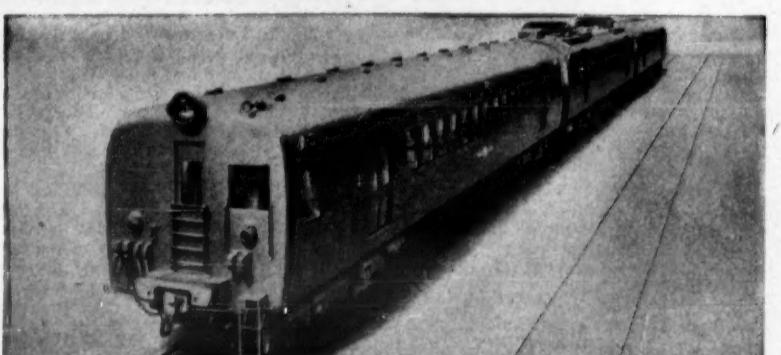
BRITISH
RAILWAYS
1,160 H.P. Diesel-
Electric Locomotive

In collaboration with
Sulzer Bros. (London) Ltd.
and
Crompton Parkinson Ltd.



SANTOS
JUNDIAI
RAILWAY,
BRAZIL

3,000 Volts, 800 H.P.
Three Car Train
In collaboration with
The English Electric
Co. Ltd.



NEW
ZEALAND
GOVERNMENT
RAILWAYS

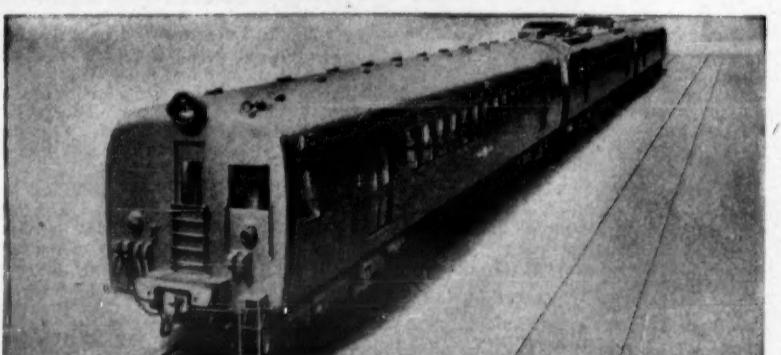
Twin Articulated
Diesel Mechanical
Railcars

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NEW BUS MAINTENANCE METHODS

L.T.E. Abolishes Major Docking

CONSIDERABLE economies are expected from new maintenance methods recently adopted by the London Transport Executive for its buses. These have been made possible by the reliability and efficiency of the modern London bus and its components; by increased mechanisation in the garages; and by staff co-operation. The main effect is to reduce the number of staff required for maintenance work by abolishing the six-monthly full day dock.

The new system is based on a thorough external examination every three weeks, making 18 inspections each 54-week cycle. As little dismantling as possible is done. Engines are changed only when loss of power or other defects become apparent, and batteries are changed only when they are becoming defective. Very few items are changed purely on a time, mileage, or age basis. The three-weekly inspection is carried out while the bus is in the garage between morning and evening peaks.

Former Methods

Formerly, London Transport buses were given a full day major dock every 27 weeks, entailing in many cases transfer of vehicles from subsidiary garages to parent garages. At this major dock certain components were replaced on a time or mileage basis. Under the new system, however, these parts are changed, in general, only when they actually need replacement. It is now seldom necessary to send vehicles to parent garages, thus saving much dead mileage.

Apart from the daily tasks of checking engine oil and cooling water, refuelling, interior cleaning, and exterior washing as required—all of which tasks continue as before—the former maintenance methods were based on three rotas. The A rota (every three weeks) included the topping-up of batteries, lubrication where necessary, vacuum cleaning of cushions, and general inspection for faults. Every nine weeks additional tasks were undertaken (B rota), and every 27 weeks buses were given a major dock (C rota). This was comprehensive and included the changing of fuel pumps and injectors and the re-lining of brakes.

Increasing Reliability

It was found that increasing reliability of units permitted gradual extensions of the overhaul period. For example, it was the practice at major docks to remove the fuel injection pump in order to check calibration. Late in 1957, however, the period between removals was extended to 54 weeks. Injectors on the other hand are removed for overhaul and replaced by overhauled spares every 27 weeks, although a number of injectors has been run for 12 months without ill-effects. A general adoption of this longer period, which is under consideration, would mean that injectors would no longer be serviced at the garage but would be overhauled to high factory standards.

It was customary for brake drums and shoes to be removed at every major dock (i.e. 27 weeks), and liners were renewed if it was not certain that they would last until the next major dock. In practice, this meant that liners were nearly always changed at major docks. The new practice is to examine liners during the three-weekly inspection and when it is found that they have been reduced to not more than $\frac{1}{2}$ in. in thickness, they are noted for replacement within a fortnight. This has reduced the consumption of liners by half.

Engines Undisturbed

The 9.6-litre engines, which are derated from 125 b.h.p. to 115 b.h.p., are very reliable and, on average, need changing only every three years; many of them run for more than four years. Cylinder heads are removed only when necessary, and often not at all between engine overhauls. Engine sumps are never removed at the garages.

Steering boxes will easily run up to four years from overhaul to overhaul without attention except lubrication, and the gearbox and fluid flywheel will run for more than three years without attention other than the addition of oil. The front axle will not run for as long, but it is called upon to conform to particularly high standards and it may prove possible to relax those standards without any prejudice to safety and thus increase the period between front axle overhauls.

At vehicle overhaul, which takes place at Aldenham Works approximately every 3½ years, most of the units removed to give access for thorough chassis inspection are refitted without attention.

These include engine, fluid flywheel, gearbox, front axle (provided it is within certain wear limits), starter, dynamo and differential. The factory vehicle overhaul period of 3½ years set by London Transport at present is almost entirely based on body requirements. Improvements in paint life and finish may make it possible to extend this period a little in due course.

Improvements in reliability and design such as those mentioned above have permitted a new approach to maintenance procedure and have provided the basis of the revised system based on three-weekly inspections, eliminating the need for the 27-weekly major dock. During the three-weekly inspection, those tasks requiring attention at longer intervals—9, 18, 27 and 54 weeks—are superimposed on the basic work in accordance with a programme designed to obtain a convenient spread of work. At each three-weekly inspection a comprehensive external examination of mechanical, electrical, and body components is made. All defects are remedied or noted for attention as soon as possible. The vehicle is washed externally and the seat cushions are vacuum cleaned. Any necessary lubrication or topping-up is also carried out. Engine oil is changed every nine weeks, and at the same time the air pressure system is thoroughly checked and more extensive cleaning of the body is undertaken. Every 18 weeks, the interior of the body is thoroughly cleaned.

Leaving Well Alone

Extra tasks which are superimposed at 27-weekly intervals include replacing the injectors, checking and adjusting tappets and oil feed to rockers, changing fuel filter elements, checking and rectifying tracking, topping up steering box and wheel hubs, replenishing handbrake oil baths, removing, checking and refitting starter motors and also battery if required, and certain painting and staining work of minor nature. The chassis is also cleaned at 27-week intervals, although it may be possible to extend this to 54-week intervals. In terms of mileage the three-weekly frequency of inspection corresponds roughly to 2,400 miles, so that something over 40,000 miles is completed by a bus in a 54-week cycle. The actual mileage will vary somewhat with the duties performed by any particular bus.

It was the former practice at the major docks regularly to remove gearbox lids, check adjustment, and so on. This has now been discontinued along with the practice of removing brake drums, etc., at 27-week intervals as already mentioned. At one time, brake cylinders and front hubs were removed at each major dock, regreased, and adjusted, but this has also been discontinued in the light of performance experience.

London Transport has in fact been moving towards these new maintenance principles for some time, so that the change is not in itself revolutionary, although acceptance of the principle of abolishing the full day major dock is, and it is this change of procedure which has opened the way to the economies mentioned previously.

Staff Co-operation

Agreement has been reached between London Transport and representatives of the staff on a reduction in the proportion of maintenance staff per bus, based on improved equipment and increased effort. The results of the savings are shared between London Transport and the staff through added payments under incentive bonus schemes. A reduction in the number of administrative and supervisory staff covering maintenance is also being secured by re-organisation. Some hundreds of staff will be saved by these measures. The reduction in staff is already catered for by recent agreements providing for the retirement of over-age staff and for voluntary retirement by staff approaching retirement age.

A further contribution towards easier maintenance is being made by increased mechanisation at garages, including especially mechanical washing plants, large vacuum cleaning plants for saloon cleaning on the return of buses to the garage, and steam and hot-water cleaning equipment. The number of bus-washing machines is now being increased to cover all major garages. The new maintenance methods have been devised by Mr. K. G. Shave, rolling stock engineer (Road Services), and his staff to the requirements of Mr. A. A. M. Durrant, chief mechanical engineer (Road Services), London Transport.

OFFICIAL NOTICE

NORTH WESTERN ROAD CAR COMPANY, LIMITED

TRAFFIC MANAGER

THE Traffic Manager of the Company, Mr. J. Green, on whom the Queen has recently conferred the M.B.E., has indicated his intention to retire at the end of January, 1959. In consequence the Company invites applications for the position of Traffic Manager which will then become vacant.

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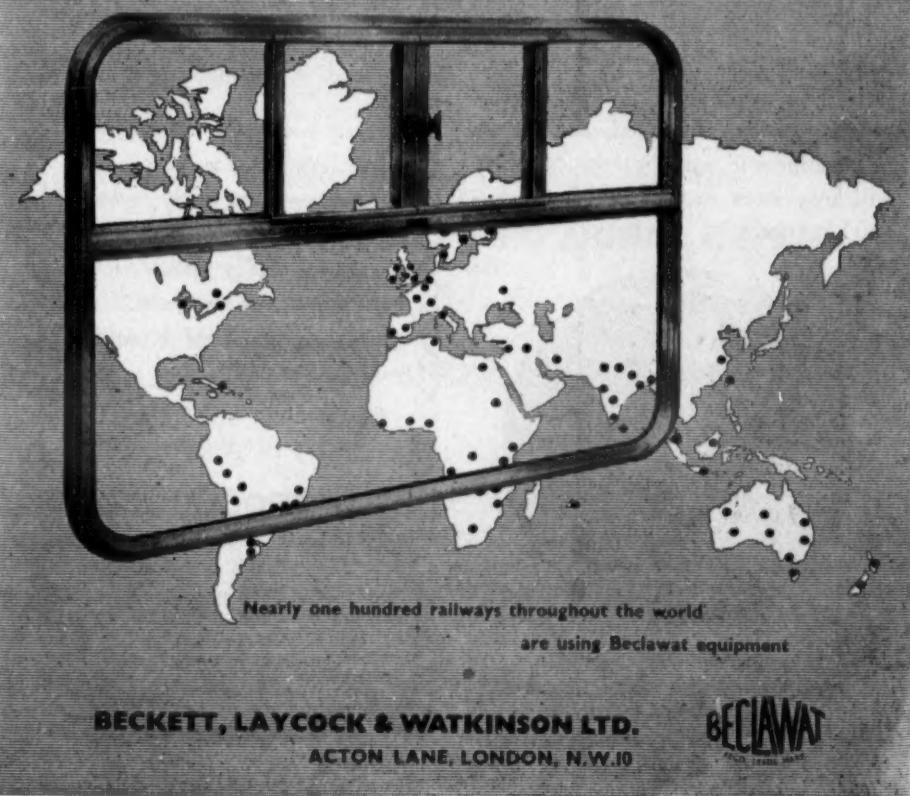
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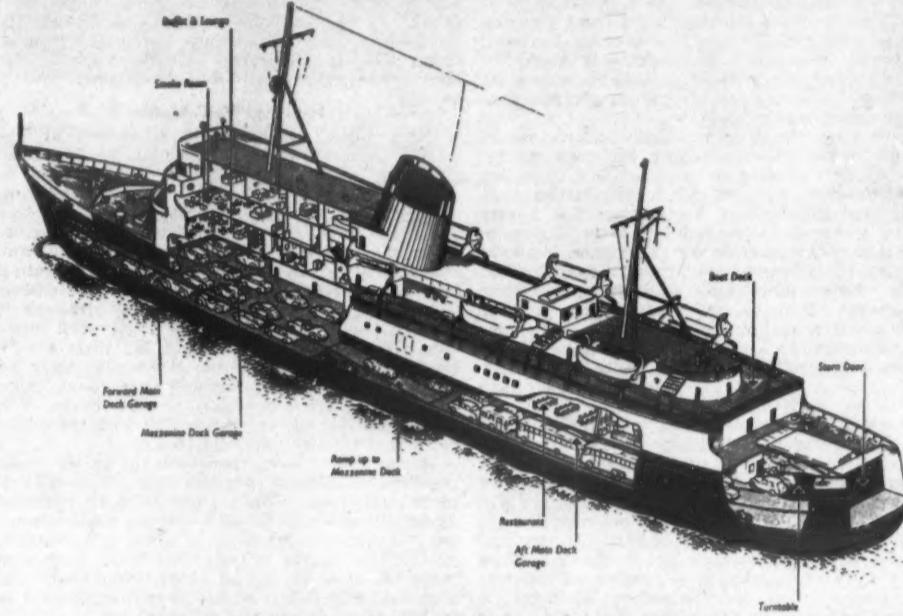
THE largest yet of the British Railways cross-Channel drive-on drive-off car ferries, *Maid of Kent*, which is being built by William Denny and Brothers, Limited, and will have a g.r.t. of 3,800, was launched at Dumbarton on November 27; the naming ceremony was performed by Mrs. C. P. Hopkins, wife of the general manager of the Southern Region, British Railways. Next summer she will join the *Lord Warden* (3,333 tons) and the S.N.C.F. *Compiegne* (3,900 tons) on the Dover—Calais and Dover—Boulogne runs, replacing the 35-year-old *Dinard* (1,769 tons) conversion.

The new ship, intended for the Dover—Boulogne service, will accommodate 180 cars, up to 30 motor cycles, and will carry motor coaches as well as 1,000 passengers. The ship is fitted with Denny-Brown stabilisers, has two continuous decks, together with an extra garage half-deck, and a cruiser-type stern to suit the ramps at Dover, Calais and Boulogne. There are a smoke room and bar, lounge and buffet, ladies' rest room, and restaurant, as well as a number of private cabins. The ship has its own shop and its own bank as well as A.A. and R.A.C. offices. A special feature is the bow lateral thrust unit which assists manoeuvring when entering and leaving port; by an adaptation of the Voith-Schneider cylindrical

The main car spaces are capable of carrying 3-ton vehicles; the main deck aft can carry 12-ton vehicles and has a specially strengthened portion for 24-ton vehicles. Up to 16 motor coaches may be carried with an appropriate reduction in the number of motor cars. Two turntables are fitted, one on the main deck aft in 22 ft. diameter and electrically operated; it is capable of carrying vehicles of a weight of 24 tons. The other is hand-operated and is 16 ft. in diameter; it is on the main deck forward and is capable of dealing with 3-ton vehicles. Provision has also been made on the main deck for the stowage of about 30 motor cycles.

To provide the maximum comfort for passengers and to obviate the risk of vehicles moving when the ship is rolling, a Denny-Brown ship stabiliser has been installed, as is now standard in Southern Region passenger vessels. A complete fire detection and fighting system, including automatic sprinklers, fire alarms and extinguishers, is fitted throughout the ship and, in addition, the garage spaces on main and mezzanine decks are protected by a separate water spray curtain system.

All public rooms, passenger, officer and crew accommodation will be provided with mechanical heating and ventilation, special attention is being



Cut-away drawing of the "Maid of Kent" showing extent and location of her accommodation

propeller the vessel can move sideways from a quay independent of currents or high winds. The thrust available is 4 tons. It can be controlled from either wing of the bridge.

Principal characteristics of *Maid of Kent*, the lines of which are most attractive, are 373 ft. length overall, 59 ft. moulded breadth and 18 ft. 3 in. depth to main deck; she will carry a deadweight of about 850 tons on a loaded draught of 13 ft. Her gross registered tonnage is 3,800. There are two complete decks—main and promenade—and a mezzanine deck amidships and forward above the main deck; there are a boat deck above the promenade deck and a bridge deck. A lower deck is also fitted forward and aft. She has two tripod masts, a funnel of modern silhouette, a well-raked stern, a cruiser-type stern and twin rudders aft controlled by twin electro-hydraulic steering gears. For manoeuvring in harbour a bow rudder, similarly controlled, is provided.

The public rooms are illuminated by a combination of cold and hot cathode fluorescent lighting. The main galley and pantry, fitted with latest type electrical equipment, are conveniently arranged on promenade deck aft, to provide an expeditious service to the restaurant. Main garage spaces are on the main deck and on the mezzanine deck forward; the decks are connected by ramps port and starboard.

given to keeping the motor-car spaces free of exhaust fumes. Eight glass fibre lifeboats will be fitted—two having motor and six hand-propelling gear. In addition to the lifeboats, 26 inflatable liferafts have been provided.

Electric current at 225 volts d.c. will be supplied by four diesel-driven generating sets, each of 300 kW; an emergency generator of 50 kW will be available. Two three-phase compensated motor alternators will supply current for the fluorescent lighting. Wireless and radio telephony equipment, radar, direction finder and all other modern navigational aids will be provided.

The main propelling machinery consists of two sets of Pamestrada's latest design of steam turbine, each set driving a four-bladed propeller through double helical locked train double-reduction gearing. Each turbine set consists of a single cylinder double-casing impulse type turbine—with ahead and astern elements incorporated on the same rotor shaft. Steam will be supplied by two Babcock and Wilcox type boilers fitted with superheaters and designed for a steam pressure of 350 lb. per sq. in. and a temperature of 650 deg. F. at the superheater outlet. The boilers will burn oil fuel under a confined duct system of forced draught. Steam for ship's domestic services to be supplied by a Spanner boiler working at 60 lb. per sq. in. The speed in service will be about 20½ knots.



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SOCIAL AND PERSONAL

Institution of Locomotive Engineers

THE following nominations have been made by the council of the Institution of Locomotive

Engineers to fill vacancies occurring at the end of the present session, May 31, 1959. These are: President, Mr. R. A. Smedley; vice-presidents, Messrs. J. F. Alcock and A. W. Manser (to retire May 31, 1962). Ordinary members of council (to retire May 31, 1962): Messrs. E. H. Baker, G. S. Bingham, E. R. Brown, J. H. Candale, T. T. Lambe, E. J. Larkin and S. I. White.

Mr. A. A. Shoebridge, M.Inst.T., will retire from his position as Commissioner for Government Transport, New South Wales, in January, 1959.

Mr. Ian C. Macfarlane has been re-elected chairman of the Clyde Navigation Trust, and Mr. Douglas Macnaughton has been re-elected deputy chairman.

The export department of Marconi's Wireless Telegraph Co., Limited, has been transferred from the London office to the head office at Chelmsford. Mr. W. J. Richards has relinquished his position as export manager to become assistant to the general manager on export matters and Mr. A. E. Shepherd is appointed manager, export department.



Mr. H. C. Johnson, general manager, Eastern Region, presenting a gold watch to Mr. F. G. Crabb, commercial officer at headquarters, to mark his completion of 45 years' service

Mr. D. E. Pounce has been appointed transport supervisor, Scribans-Kemp, Limited (located at Cricklewood), succeeding Mr. H. Tudor Williams, who, as announced in our last issue, has retired.

Monsieur René Margot-Noblemair, managing director of the Compagnie Internationale des Wagons-Lits since 1933, has been appointed to the board of governors of the company with the title of honorary managing director. The position of managing director has been taken by Monsieur André Widhoff, his deputy since 1946.

The London district office of the British Thomson-Houston Co., Limited (manager, Mr. J. L. Dixon) is now at 33 Grosvenor Place, S.W.1, and not at Crown House, Aldwych. The British Thomson-Houston export organisation (managing director, Mr. E. V. Small) is already established at the new address.

The 14th Henry Spurrier memorial lecture of the Institute of Transport will be delivered at 5.45 p.m. on December 8 at 66 Portland Place, by Mr. E. R. L. Fitzpayne, a vice-president of the Institute and general manager of Glasgow Corporation Transport Department, on "The Problem of Wages."

The death is recorded of Mr. F. Peake, who formed North Stafford Motors, Tunstall, in the early 1920s. He became chairman of Associated Bus Companies, Limited, which, with 64 buses, was merged with the Potteries Motor Traction Co., Limited, in April, 1944; Mr. Peake became a P.M.T. director. He was 71.

The Commonwealth-type one-piece cast-steel bogie which English Steel Castings Corporation, Limited, Sheffield, loaned to the British Iron and Steel Federation for display on its stand at the Brussels Universal and International Exhibition, has been awarded a diploma of honour. It was of a type supplied to the English Electric Co., Limited, for a batch of 750-h.p. diesel electric locomotives delivered to the New Zealand Government Railways.

We record with regret the death of Mr. J. Hopwood, O.B.E., chief superintendent of operations, Rhodesia Railways, until his retirement in 1947. At that time he was the longest-serving member of the staff. He commenced his railway career with the Argentine Great Western Railway in 1897 as clerk and stationmaster. He went to Rhodesia in 1902 and in 1934 became operating superintendent, Bulawayo, holding this post until 1943. Mr. Hopwood then succeeded to the post of chief superintendent of transportation. He was awarded the O.B.E. in the 1947 New Year Honours List.

On Sunday, November 30, the London Midland Region lines controlled by the district operating superintendents at Nottingham, Midland and Nottingham Victoria came for greater efficiency and economy under a single administration, apart from some outlying sections of the Victoria district, which will be taken over by the district operating superintendents at Leicester and Derby. The operating superintendent for the new Nottingham district will be Mr. R. J. Powell, hitherto superintendent at Nottingham Midland, and Mr. A. D. Cochran, previously in charge of the Nottingham Victoria operating district, from the same date became district operating superintendent, Derby.

We record with regret the death of Mr. F. S. Whaley, M.C., M.I.Mech.E., M.I.Loco.E., former chairman of Vulcan Foundry, Limited, and of Robert Stephenson and Hawthornes, Limited. He was 73. Mr. Whaley was made general manager of Vulcan Foundry in 1923, became managing director in 1929 and chairman in 1946. In 1940 Mr. Whaley was appointed chairman of the Locomotive Manufacturers' Export Group. He was elected to the board of the North British Locomotive Co., Limited, in 1941 and in 1944 he was elected chairman of Robert Stephenson and Hawthornes. He relinquished both chairmanships in 1951.

Mr. H. Rosaington, London district manager, South Eastern Division of British Road Services, is relinquishing that position due to ill-health.

The Institution of Locomotive Engineers announces that its annual luncheon will be held at the Dorchester Hotel on Friday, February 27, 1959, not on March 6, as previously intimated.

The Institut du Transport Aérien has elected as president Monsieur A. Siegfried and as vice-presidents Messieurs W. Deswarte (general manager, Sabena, Belgium) and P. Moroni (S.G.A.C.C. France).

At a sales convention held at Ripon on November 27, when his successor was introduced, a presentation was made to Mr. George May to mark his retirement after only a few months short of 40 years as sales manager of Robert Kearsley and Co., Limited, paint manufacturer. His successor is Mr. P. North, who for the last two years has been London manager.

The annual dinner of the London division of the Industrial Transport Association was held at the Cora Hotel, W.C.1, on November 27 when Mr. R. J. Holcombe, divisional chairman, presided. He was supported by the president, Sir Wavell Wakefield, and the national chairman, Mr. A. L. Bagley, while the response to the toast of "The Guests" was made by Mr. J. W. Bannard, chairman of the Mansion House Association on Transport. Entertainment was provided by Raimund Herinx and Ming Chow.

Agreement has been reached between the British Transport Commission and the three railway unions on the composition of the three-man independent committee to inquire into "the relativity of pay in British Railways with that in other nationalised industries, public services and appropriate private undertakings." Mr. C. W. Guillebaud has already been announced as chairman. The other members are Mr. E. Bishop, 63, joint secretary of 17 negotiating bodies in local government service, and Mr. H. A. Clegg, 40, who is in charge of a survey of industrial relations for Nuffield College, Oxford, and author of a book on nationalisation.

The annual dinner of the Railway Club was held at the Danish Club, London, on November 28. The president of the Club, Mr. T. S. Lascelles, was in the chair, supported by Mr. Charles E. Lee and Mr. H. A. Vallance (vice-presidents). The guests of the evening were Mr. R. F. Hanks (chairman, Western Area Board) and Mr. S. R. Honey. Others present among the record attendance of 71 members and guests included Mr. C. J. Rider and Mr. L. C. Johnson. An apology for absence was received from Mr. D. S. M. Barrie. The toast "The officers and committee" was proposed by Mr. C. F. Wells, to which Mr. J. E. Norris replied. The toast "The guests" was proposed by Mr. Lambert H. Bailey and Mr. R. F. Hanks responded.



At the new Southern Region training school for diesel train drivers and electric motor-men, Stewarts Lane, Battersea
Left to right: Messrs. A. Hallworth, general secretary, A.S.E. and F.; G. A. Weeden, motive power officer; and Charles Hopkins, general manager of the Southern Region

The Minister of Transport has appointed Mr. W. Mowbray, J.P., to be a Member of the Transport Users' Consultative Committee for Scotland, as one of the two members representing labour. County Councillor J. S. Goodwin, J.P., has been made a member of the North Eastern area committee.

A bronze bust of Lord Hives, the work of Sir Charles Wheeler, president of the Royal Academy, has been placed in the entrance hall of the headquarters of Rolls-Royce, Limited, at Derby, beside those of Sir Henry Royce and the Hon. C. S. Rolls. Lord Hives retired last year after 48 years' service with the company, during which time he rose from fitter and car tester to chairman and managing director.

The London Midland Region announces the following staff appointments:

Mr. J. Rhodes, to be assistant district commercial manager (sales), Derby.

Mr. C. H. Garratt, to be assistant to works manager (diesel), carriage and wagon works, Derby.

Mr. A. A. Taylor, to be assistant district estate surveyor, Liverpool.

Mr. J. G. Spencer, to be assistant district motive power superintendent, Derby.

Mr. A. H. Webb, to be assistant to district operating superintendent, Leicestershire.

Mr. L. H. Birchard, to be assistant to district passenger manager, D.P.M.O., Manchester.

Mr. B. L. Freeman, to be assistant district operating superintendent, Liverpool Central.

Mr. C. J. Smith, to be assistant to district goods manager (carriage), Broad Street.

Mr. A. Porter, to be assistant district motive power superintendent, Totnes.

Mr. J. Fore, to be assistant district motive power superintendent, Willesden (located Camden).

The autumn technical visit of the Institution of Railway Signal Engineers was held on November 29, when by permission of the London Transport Executive the programme machine installations on the Northern Line were inspected. Camden Town, Euston and Kennington were each visited, including the relay rooms with associated interlocking machines, train describing and other equipment. At luncheon, at which Mr. J. F. H. Tyler, president, was in the chair, he expressed thanks to London Transport for the facilities afforded. Mr. R. Dell, signal engineer, London Transport, in reply, said he might have provided the inspiration leading to the evolution of the programme machine system but it had been made a practical reality, only by a great deal of hard work on the part of those serving under him, as he particularly wished to acknowledge.



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AGAIN**



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A further make of vehicle to be fitted with brake equipment supplied by

WESTINGHOUSE BRAKE AND SIGNAL CO. LTD.

We are pleased to announce that Messrs. E.R.F. are now fitting WESTINGHOUSE BRAKES on all their export chassis and home chassis of the heavier range, Models 66TSGA, 64GA, 66R, 68G and 66G.

● May we quote you for suitable equipment from the wide range we supply to most principal road vehicle manufacturers in the U.K. and also to manufacturers overseas.

WESTINGHOUSE BRAKE AND SIGNAL CO. LTD.
AUTOMOTIVE & INDUSTRIAL PRODUCTS DIVISION
HANHAM ROAD, KINGSWOOD, BRISTOL Tel: Bristol 6781

Sales Agents for Road Transport Undertakings:
Equipment & Engineering Co. Ltd., 2-3 Norfolk St., Strand, London, W.C.2

IMPORTANT CONTRACTS

Aircraft Industry Export Record

DURING the first 10 months of 1958, the aircraft industry's exports exceeded by 9 per cent the exports for the whole of 1957, which was a record year. The total value of exports up to the end of October was nearly £127 million representing an annual figure of more than £150 million. The 10 months' total is nearly double the 1955 annual figure, 21½ per cent more than in 1956 and 45 per cent more than the total achieved during the first 10 months of 1957. Of total U.K. exports during this period, the aircraft industry accounted for 4.8 per cent while the industry's share of U.K. exports to the United States was 19.5 per cent. India was the leading overseas buyer with £15,514,467 worth of aircraft and parts, followed by Canada £13,471,828, the United States £11,197,750, West Germany £8,401,821, Australia £2,904,602, the Netherlands £2,250,671, Iraq £1,807,898 and France £1,669,207.

And Aircraft Polish

Impressive as are the aircraft industry's export figures, they do not include all the industry's products and an interesting example of successful ancillary products is that of the aircraft cleaning materials produced by Valay Industries, a London firm. Among this company's products are Wadpol, a combined cleaner-polish for metal and painted surfaces, Aerowax, a wax finish for high-speed aircraft, Aerowash for removing grease and grime and Aeroval for interiors. The most successful is Wadpol, which is the standard polish for the Royal Air Force and the Queen's Flight and is used by many other air forces throughout the world, including those of the United States, Venezuela, Norway, New Zealand, Canada, Australia, Pakistan and India as well as by many airline operators and manufacturers. Some 80 per cent of Wadpol production goes to overseas customers, much of it for hard currency.

Air Algerie Orders Fourth Caravelle

Air Algerie has ordered a fourth Caravelle jet air liner from Sud Aviation, exercising an earlier option. This brings the total number of the type on firm order to 50, with 16 on option. Air France is expecting delivery of its first Caravelle early next year.

Dunlop Gets Czechoslovak Order

Despite keen German competition, the Dunlop Rim and Wheel Company has secured from the Czechoslovak Government a contract worth £469,150 to supply semi-automatic production lines for the manufacture of car and commercial vehicle wheel rims. The bulk of the plant is scheduled for delivery during 1959.

Increasing Use of Onazote

Recent contracts for carriages and wagons built or under construction for overseas railway companies indicate increasing use of the British insulating material, Onazote. Onazote insulation has been used in 200 refrigerated wagons for New Zealand Railways, of which 100 were manufactured by the Commonwealth Engineering Com-

pany, Australia, and 100 by Metropolitan-Cammell Carriage and Wagon Co., Limited, in Britain. The Interfrigo organisation has placed a repeat order in Germany for 100 wagons incorporating Onazote for floor insulation and other contracts include 90 refrigerated wagons for Rhodesia Railways and 20 wagons for Belgian Congo Railways, all insulated throughout with Onazote. Passenger coaches ordered by Rhodesia Railways, East African Railways, Nigerian Railways and Hong Kong Government Railway will all have roofs insulated with Onazote.

Aberdeen Buses for Mauritius

Shipment will shortly be made of another four Albion Aberdeen underfloor-engined bus chassis similar to those previously exported to Mauritius by Albion Motors, Limited. United Bus Services on the island already has four Leyland Tiger Cubs and four Aberdonians in service, all fitted with locally built 47-seat bodies.

Sulzer-de Havilland Agreement

Sulzer Bros. (London), Limited, has announced the conclusion of an agreement with the de Havilland Engine Co., Limited, for the manufacture by the de Havilland company at their Leavesden works of the Sulzer supercharger for diesel rail traction purposes. Superchargers will be manufactured to the order of Sulzer Bros. and the present programme includes a number for the British Railways modernisation programme.

TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Leadenhall Road, London, W.C.1.

December 17—**Vietnam**.—International Co-operation Administration for six-wheeled 110-h.p. diesel-electric loco and for diesel TRACKED TRACTORS (Inv. No. 489-20108); 25 diesel WHEEL LOADERS (Inv. No. 489-20109); 51 straight-blade BULLDOZERS (Inv. No. 488-21018); one six-passenger DUAL-PURPOSE VEHICLE and four LORRIES (Inv. No. 490-20108); and four DUAL-PURPOSE VEHICLES (Inv. No. 497-21018). Tender documents and specifications from the Vietnamese Embassy, 12 Victoria Road, London, W.8, quoting appropriate invitation number.

December 17—**Lebanon**.—International Co-operation Administration for three 600-h.p. DIESEL-ELECTRIC LOCOMOTIVES, 99 20-ton four-wheel BOX WAGONS, 25 bogie FLAT WAGONS and 25 four-wheel FLAT WAGONS, all standard gauge. Photocopies of tender documents (price 35s.) and drawings (price 32s.) from Export Services Branch, B.O.T., (E.S.B./26578/58/ICA.)

December 17—**Portuguese East Africa**.—Ports, Railways and Transport Department for quantities of RAILS, POINTS and ACCESSORIES. Photocopies of tender documents from Export Services Branch, B.O.T., price 2s. (E.S.B./26347/58.)

December 19—**Union of South Africa**.—South African Railways for 60 sets of BATTERIES for locomotives, each of eight 12-volt units. Photocopies of tender documents from Export Services Branch, B.O.T., price 8s. (E.S.B./28339/58.)

December 19—**Union of South Africa**.—South African Railways for 10,000 pairs of INSULATING FISHPATES, with nuts and bolts. Tenders endorsed "Tender No. A.7585: Insulating Fisepates," to the Chairman, The Tender Board, P.O. Box 7764, Johannesburg. (E.S.B./28338/58.)

December 19—**India**.—Port of Calcutta Commissioners for three DIESSEL-HYDRAULIC SHUNTING LOCOMOTIVES. Tender forms and specification from Messrs. Rendel, Palmer and Tritton, 125 Victoria Street, Westminster, London, S.W.1, price 30s.

SHIPPING AND SHIPBUILDING

Convenience Flags Inconvenienced

ACCORDING to a statement issued by the International Transport Workers Federation on Monday this week, the four-day boycott by port workers of flags of convenience ships which it had called for throughout the world was being observed in many ports, notably in the U.S.A., home of perhaps 40 per cent of all tonnage flying Panamanian flags. Elsewhere, however, it was evident that for various reasons the embargo on handling such ships was only partially enforced. Dockers in France, Italy and the German Federal Republic were reported not to be participating. Only a small proportion of the world's 1,200 vessels flying these tax-free flags were in port on Monday.

On the eve of the boycott, Mr. Stavros Niarchos, the Greek shipping magnate, said he would take legal action in the civil courts if any of his company's ships were affected and Liberia protested that the embargo was an "affront to her national sovereignty." A more positive reaction was that of Costa Rica, which decided to cancel the registration of all 233 foreign vessels flying that flag. In consequence, the Costa Rican ensign should vanish from the high seas. She has no merchant marine of her own. The sacrifice to the national exchequer is of the order of £35,000 annually; the decision takes effect from January 1, 1959.

Air Conditioning Conversion Unit

A VERSATILE new air conditioning unit has been developed by Thermotank, Limited. Known as type C, it can be used, among other purposes, to convert existing heating and ventilating systems to full air conditioning without expensive installation costs and with only the minimum of structural alterations. It is the latest addition to the very wide range of Thermotank units which have been specifically designed for air conditioning aboard ship. The type C unit is intended for mounting on open weather decks, but it can be fitted below deck if required, provided a minimum clear headroom of 7 ft. 6 in. is available for the largest size. The maximum deck space required is 5 ft. 6 in. square. The cooling capacity of the units ranges from 4 tons refrigeration to 20 tons refrigeration, with nominal air circulation of 1,500 c.f.m. for the smallest to 5,500 c.f.m. for the largest.

Launch of B.R. Ship

SPEAKING after the launch in Glasgow of the Associated Humber Lines motor vessel *Leeds* (1,300 tons deadweight), Mr. H. A. Short, chairman of the owners and general manager, North Eastern Region, British Railways, said they were delighted to have Lady Watson as sponsor. General Sir Dariel Watson was always pleased to go up to his beloved Clyde. Sometimes they were inclined to think only of Sir Dariel's very successful army career and to overlook that he was an active shipping man before the 1914-18 war. Shipping was his first love and he had always retained a deep affection for it. He had taken a very keen interest in the British Transport Commission shipping services; in fact, much of their shipping

modernisation was the result of his effort. General Sir Dariel Watson was a member of the Railway Executive and Secretary-General, B.T.C., in 1955. He continues to serve on the Shipping and International Services sub-commission of the B.T.C.

Stevedores Brew Trouble

SUSPENDED last week from affiliation to the T.U.C. because it defiantly retained members allegedly poached from the T. and G.W.U. on Merseyside and elsewhere during the last dock strike there, the National Amalgamated Stevedores and Dockers Union has retaliated by planning to hold a series of protest meetings in London, Manchester, Hull, Liverpool and Birkenhead. Outside London the "blue card" union is believed to retain only 2,600 members. The N.A.S.D. maintains that it cannot legally expel its northern members; the T.U.C. wants them represented in wage negotiations by the T. and G.W.U.

Japanese Export Construction

THE Japanese Ministry of Transportation is stated to have authorised the export construction of 522,000 gross tons of shipping valued at \$133 million since April 1, the beginning of the current financial year. This surpassed the export target of 500,000 tons set in April for the full year. Export authorisations in the last financial year had amounted to one million tons but the target for this year had been set at only half this total in view of a recession in the freight market. During the first 22 days of November a total of 299,000 tons was authorised for export. Export authorisations for the whole of the current financial year were expected to reach 800,000 tons. The Ministry attributes the sudden advance in export contracts in November to low prices accepted by Japanese shipyards and an apparent belief on the part of some overseas owners that the freight market would show an improvement in the not too distant future.

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or re-organisations.

J. Brockhouse

In the year ended September 30, J. Brockhouse and Co. Limited, earned a net trading profit (home and overseas) of £1,042,615 (£1,079,477). Net profit after tax, etc., was £365,105 (£301,058). Ordinary dividend is 84 per cent (same), balance forward £627,666 (£489,450). Since the early part of the year profit margins on semi-finished products for the engineering trade have been sharply reduced; since the beginning of September orders have increased, but a much larger volume of business is required to increase the small profit at present earned.

Hawker Siddeley Group

The Hawker Siddeley Group, Limited, is distributing a final dividend of 7 per cent on the ordinary shares making, with the interim dividend already paid, a total of 10 per cent for the year ended July 31. Trading profit of the U.K. group was £8,683,890 (£8,574,404), before tax, the balance after income tax and profits tax, etc., being £4,725,501 (£3,225,776). The Canadian group had a net profit after tax, etc., of £7,115,584 (£5,118,601).

Loch-Light comes to Scotland

and Austin horse-power
helps to bring it



POWER ENOUGH to keep a town the size of Aberdeen going—that will be the daily output of electricity from the Breadalbane Project (part of the vast Scottish hydro-electric scheme), now nearing completion.

That power will come from thousands of tons of water; water collected from the mountain streams of Perthshire and channelled through an elaborate system of tunnels to Glen Lyon. Here, at the threshold of the Highlands, a mighty dam is almost finished. Here the piped tunnels converge after cutting through mountain and rock for up to 9 miles. And here the waters are already held in check . . . a great man-made loch now stretches miles back between gaunt mountain slopes.

The rocky road to Glen Lyon To reach construction sites, 22 miles of road had to be cut over the mountains between Glen Dochart and Glen Lyon. With alarming hairpin bends, the single track zigzags perilously up the bare hillside. Overall gradient on this road is 1 in 5. Steepest drags are 1 in 3.

Conferences on a mountain-side Soon Mr. Knights will have another Austin 7 tonner on the road. Mr. Carlisle (right) of Carlaw (Cars) Ltd., Glasgow, will supply it. So Big Jock Wilson takes him over the route and points out the rougher parts of his tough journey.



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AUSTIN

Free personal benefits for
drivers. Ask us for details.



The great dam grows Spanning Glen Lyon, the white bulk of the Lubroch dam rises to the sky. Empty now, the Austin 7 tipper speeds back for its second daily load of sand.

Twice a day, 5½ days a week, an Austin 7 tonner climbs this steep, rocky road, carrying wet sand. The sand is collected at Doune, over 50 miles from the site. Over 2,000 tons of it have been delivered so far. And, clocking up a daily average of 225 miles, over 35,000 miles have been covered by this one lorry on this job alone.

"Aye, I will that." Of its performance, owner Walter Knights, haulage contractor of Fintry, Stirlingshire, says: "I bought the Austin in May 1957 from Mr. Carlisle of Carlaw (Cars) Ltd., Glasgow. Since then it has given me no trouble, but for one or two footy wee things. I'm getting 15 miles to the gallon out of it now and I'm very well satisfied with it." Asked if he would buy another Austin, Mr. Knights was emphatic. "Aye, I will that," he said.

AUSTIN

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